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THE  
CALCUTTA JOURNAL  
OF  
MEDICINE:

A MONTHLY RECORD OF THE MEDICAL AND AUXILIARY SCIENCES.

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That alone is the right medicine which can remove disease :  
He alone is the true physician who can restore health.

*Charaka Sanhitā.*

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EDITED BY  
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# THE CALCUTTA JOURNAL OF MEDICINE

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## FIRST BATCH OF INDIAN YOUTHS WHO COM- PLETED THEIR MEDICAL EDUCATION IN ENGLAND.

THE first charter of India's intellectual liberty was the Government Order issued by Lord William Bentinck on the 7th March, 1835, in which it was declared that "His Lordship in Council is of opinion that the great object of the British Government ought to be the promotion of European literature and science among the natives of India, and that all the funds appropriated for the purposes of education would be best employed on English education alone.

\* \* His Lordship in council directs that all the funds which these (previously mentioned) will leave at the disposal of the committee (on education) be henceforth employed in imparting to the native population a knowledge of English literature and science through the medium of the English language." We should remember with the liveliest and deepest gratitude that this decision of Government we owe chiefly to the exertions and influence of four men, Ram Mohan Roy, our great reformer, Mr. (afterwards Sir) Charles Trevelyan, under Secretary to the Government of India for Foreign Affairs, Mr. (afterwards Lord) Macaulay, then Law Member of the Governor General's Council, and the Rev. Alexander Duff, that prince of Christian missionaries who has done so much for education in this country.

It is indisputable that none of the vernaculars or spoken languages of India contained at that date or contains even

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now any literature that can elevate a nation. And, science properly so-called being absolutely unknown in the country, none of these languages could possibly express to be intelligible the facts and truths and generalizations of science. It is true that Sanskrit and Arabic, the two classical languages in India, do contain a literature (in which we include philosophy, logic and metaphysics) worth studying; but not such as can compare with the literature that has been developed in the West. Besides; these languages are as much foreign to the masses of the people as the English. Under these circumstances, there cannot possibly be any true and sound education of the natives of India except in the literature and science of the West through the medium of the English language which, through continuous improvement from the time of Chaucer, has become one of the most expressive and expansible of modern languages, which is at present the most widely spoken language in the world, and which has for us the most cogent of recommendations being the language of the ruling class, and therefore of Government.\* Had

\* We have to educate a people who cannot at present be educated by means of their mother-tongue. We must teach them some foreign language. The claims of our own language it is hardly necessary to recapitulate. It stands pre-eminent even among the languages of the west. It abounds with works of imagination not inferior to the noblest which Greece has bequeathed to us with models of every species of eloquence; with historical compositions, which, considered merely as narratives, have seldom been surpassed, and which, considered as vehicles of ethical and political instruction, have never been equalled; with just and lively representations of human life and human nature; with the most profound speculations on metaphysics, morals, government, jurisprudence, and trade; with full and correct information respecting every experimental science which tends to preserve the health, to increase the comfort, or to expand the intellect of man. Whoever knows that language has ready access to all the vast intellectual wealth, which all the wisest nations of the earth have created and hoarded in the course of ninety generations. It may safely be said, that the literature now extant in that language is of far greater value than all the literature which three hundred years ago was extant in all the languages of the world together. Nor is this all. In India, English is the language spoken by the ruling class. It is spoken by the higher class of natives at the seats of Government. It is likely to become the language of commerce throughout the seas of the East. It is the language of two great European communities which are rising, the one in the south of Africa, the other in Australasia; communities which are every year becoming more important, and more closely connected with our Indian empire. Whether we look at the intrinsic value of our literature, or at the particular situation of this country, we shall see the strongest reason to think that, of all foreign tongues, the English tongue is that which would be the most useful to our native subjects.—MACAULAY: *Minute on Education of the Natives of India.*

it not been for the resolution of Lord William Bentinck's government noticed above, India would have remained in intellectual darkness as any other Asiatic country, excepting only Japan. Indeed, the example of Japan ought to prove to us how much we are indebted to the literature and science of the West, and how much more we could have progressed if we had but willed it, if we had fully understood where our real interests lay.

We owe another boon to Lord William Bentinck, and that was the foundation of the Calcutta Medical College. The Government General Order founding the College is dated the 28th January 1835, a month and a quarter before the issue of the decree above noticed; so that it would appear that the College was founded in anticipation of that decree, and to give the fullest effect to it. The College was intended for the instruction of native youths in the various branches of medical science in strict accordance with the mode adopted in Europe, the instruction being given through the medium of the English language. The establishment of an institution for imparting instruction in medicine based upon the only true basis of anatomy and physiology was not limited to Bengal. Similar institutions have since been established at other presidency and other towns, so that now we have four first class medical colleges which are doing an amount of good which is simply incalculable.

• Well has Dr. George Smith, in his life of Dr. Duff, said: "The tale of what the medical colleges of India—for others sprang up in imitation of Bengal at Bombay, Madras, Lahore, and Agra—have done for humanity, for the sciences allied with medicine, and for enlightenment throughout the peninsula, in the half century since Duff began his apostleship, would form one of the most brilliant chapters in the history of progress."

Of all the educational institutions in India, these Medical Colleges have been the most powerful instruments in overturning and removing some of the most deep-rooted prejudices which stood in the way of progress in this country. One of the most important steps taken towards this object was the dissection of the human subject by the students. The next important step was to send them to Europe to complete their education. The first was carried out in the Calcutta College in 1836. Eight years after this event, Babu Dwarka Nath Tagore offered to take



two pupils of the Medical College to England, and to educate them there at his own expense. When Dr. Monat announced this proposal to the assembled school, and pointed out the great advantages of visiting Europe, three students volunteered unconditionally to accept the offer. Soon after this, Professor H. H. Goodeve volunteered to proceed to Europe in charge of the pupils who might be selected, to watch over their education, and to bear the expenses of an additional student, provided the Government allowed him to retain half of his staff salary, to have a lien on his appointment in the Medical College, and to count as service the period during which he will have to stay in Europe on this special duty. This proposal being accepted by Government, Dr. Goodeve raised an additional sum of 7,500 Rupees for a fourth student, more than half of which was contributed by His Highness the Nawab Nazim of Bengal.

As the prohibition to cross the *Kalapani* (the black water of the sea) is now more honored in the breach than in the observance, and as numbers of youths of this country now proceed to Europe to complete their education, we propose to give a detailed account of the manner in which the first batch of Indian medical students prosecuted their studies in England, and of the remarkable success which attended their efforts, so that the foot prints left behind by them, may not only encourage the younger brethren of their own profession to "take heart," but all others also, who like themselves, shall sail "over life's solemn main."

The four selected pupils who went with Professor Goodeve, and started in the steamer *Bentlnck* on the 8th March 1845, were (1) Bhola Nath Bose, a pupil of the Barrackpore school established by Lord Auckland in 1837, who studied in the Medical College for nearly five years at the expense of His Lordship, and was the best student in Botany, "whose descriptions of plants, remarks on their structure and properties, and answers to difficult questions put to him," were pronounced by Mr. Griffith to have been "excellent;" (2) Gopal Chunder Seal, who obtained the Rustomjee medal for proficiency in Anatomy; (3) Dwarkanath Bose, a convert to Christianity educated in the General Assembly's Institution, and employed for some time as assistant to the college museum; and (4) Soorjee Coomar Chuckerbutty, a junior pupil of good parts and much promise. On the arrival of these

young men in England, they were placed at University College, London. They resided with, and were personally superintended by, Dr. Goodeve, and were treated with marked kindness and attention by many distinguished personages, among whom the Earl of Auckland, Sir Henry Willock, Sir Edward Ryan and the Professors of the University College were most prominent. It appears from the first half-yearly report of Dr. Goodeve that during the summer session of 1845 Dwarkanath did not gain any honors; that Gopal "for his proficiency in practical anatomy was selected by Professor Quain to dissect the subjects for his lectures—a post of considerable honor in the anatomical class;" that at the botanical examination which took place in August, Bholanath was third in the list in a class of more than seventy students, and only failed to obtain the silver medal by two marks, and that Professor Lindley presented him with a copy of his own work as a testimony of his approbation, accompanied by a very complimentary certificate; and that Surjee Coomar became a favorite pupil of Dr. Grant, professor of comparative anatomy, and a frequent companion of his leisure hours, thus getting valuable opportunities of learning this branch of science. The private conduct of these young men were most exemplary. Their whole time was devoted to study, and they were quite regardless of amusement in any shape when it interfered with their occupations. They conformed to European manners and customs, were for the most part gentle and obedient, and had scarcely any fault to be found with. The most remarkable thing about them was that a perfect harmony and good feeling subsisted between them and the other students of the college. During the college vacation, the first three of these youths visited Bristol, Bath and the neighbouring parts of Gloucestershire, Somersetshire, and South Wales, and saw the manufacture of cotton, glass, and floor cloth to be found in that part of England. They also visited the tomb of Ram Mohun Roy, and the scene of his illness and death. Soorjee Coomar accompanied Professor Grant to Paris, and during a stay there of six weeks, not only studied the contents of the various museums of natural history, so abundant and valuable in Paris, but also acquired a tolerably good knowledge of the French language, and cultivated the acquaintance of many distinguished Frenchmen.

At the conclusion of the following winter term, Dwarkanath obtained the seventh certificate in Midwifery, and Gopal the seventh certificate in Medicine and the ninth certificate in Physiology. Bholanath gained the first silver medal (second prize) in Chemistry, the second certificate for an essay on "the constitution of ammonia" (then a very difficult chemical problem), and the first silver medal (second prize) in *Materia Medica*. Soorjee Coomar gained the gold medal in Comparative Anatomy after answering a series of unusually difficult questions on the subject, as also the seventh certificate in Anatomy, and the twelfth in Physiology. He obtained also the silver medal (the only prize) in Zoology. His paper on this subject was so superior that the Examiner recommended the substitution of a gold, instead of the silver, medal, but as this change would create an inconvenient precedent the Examiner's request was not acceded to.

In July 1846, Dwarkanath, Gopal, and Bholanath passed the examination for the Diploma of the Royal College of Surgeons of England, and became members of the College. After the conclusion of this examination "the President (Mr. Lawrence) in the name of the Board of Examiners complimented these youths highly upon the very satisfactory manner in which they had passed the ordeal. He stated that no favor whatever had been shewn to them, the questions having been perhaps more searching than usual, while the replies bore more favorable comparison with those of the great bulk of English students subjected to the same test." Dwarkanath was satisfied with this distinction which is sufficient for all professional purposes; and after having regularly attended the surgical practice of the hospitals, and held charge of several Midwifery patients under the direction of Professor Murphy to his perfect satisfaction, returned to India during the year 1847, was first appointed Resident-Surgeon of the Female Hospital of the Medical College and subsequently became Assistant Demonstrator of Anatomy to the English class, which latter situation he held for several years with credit to himself and benefit to the College.

Dwarkanath met with a most hearty welcome on his return to India, especially from the Honble F. Millett, who, while distributing prizes to the students of the Calcutta Medical College in 1847, referred to the progress made in England by these four

pupils, in the following terms :—"This is an experiment respecting which I was always sanguine, but the result has exceeded my highest expectations. Herein we have a noble example of what the combination of ability, determined industry, and perseverance in good conduct, can accomplish. These young men, though labouring under the great disadvantage of having to express themselves in a foreign language, have, in honourable competition with their English fellow-students, in several instances surpassed, and always maintained a high position amongst them; and have won the admiration of all who have witnessed their exertions."

Gopal and Bholanath next passed the first examination for the degree of Bachelor of Medicine at the London University (then the most difficult medical examination in Europe). This commenced on the 3rd August 1846, and lasted four days, during six hours of each day. There were 30 candidates, and the passed students were arranged in two classes according to their merit. These two youths were placed in the first class. They now competed for honors, and in this more difficult ordeal also they obtained certificates, and received the warmest approbation of the examiners. Besides these public honors, Bholanath obtained another college distinction, viz., a gold medal, the first prize in the class of Botany. He also made considerable progress in Latin. Gopal devoted himself chiefly to hospital practice during the term (the summer term of 1846). He was elected one of Dr. Williams's clinical clerks, a most valuable opportunity for studying disease, and was engaged in the hospital wards in examining and reporting upon the patients under his care. Soorjee gained the fifth certificate in Botany, and devoted a large portion of his time to learning Latin, Greek, French, German and English, in which last language he was somewhat deficient.

During the vacation, Soorjee went with Professor Grant by way of Belgium up the Rhine to Mayence and thence across through Frankfort and Leipsic to Berlin. In the latter city they passed a month chiefly in the museums of Natural History in the University there. They returned through Hanover, Brunswick and Cashel, visiting among other institutions the laboratory of Professor Liebig at Giessen. During this whole time Soorjee also applied himself as closely as possible to the study of the German

language. Dr. Goodeve took the other two youths to Scotland. They spent upwards of a month in Edinburgh, visiting the University, Museum, Hospitals and Botanical Gardens, and all places of interest in the neighbourhood. They also saw Glasgow, Dundee and Arbroath and the Western Highlands. They received great kindness and civility from Professors Christison, Miller, and Allan Thompson of Edinburgh, and returned by way of Liverpool, Manchester and Birmingham, stopping at each town to examine the more important manufactures and objects of interest.

During the first term of the year 1847, Gopal, Bholanath and Soorjee obtained the following honors in the class examinations at the college :—

|                           |   |                                    |
|---------------------------|---|------------------------------------|
| Gopal Chunder Seal        | { | Certificate in Surgery             |
|                           | { | Ditto.      Medicine.              |
| Bholanath Bose            | { | Gold medal in Comparative Anatomy. |
|                           | { | Certificate in Surgery.            |
|                           | { | Ditto      practice of Medicine    |
|                           | { | Ditto      Midwifery.              |
| Soorji Cumar Chuckerbutty | { | Certificate in Anatomy.            |
|                           | { | Ditto      Physiology              |
|                           | { | Ditto      Materia Medica          |
|                           | { | Ditto      Chemistry.              |

This fact of nine honorable marks of distinction besides the gold medal gained by Bholanath having been obtained by three Indian youths, was noticed by Lord Brougham in his public address delivered on the 30th April 1847 on the occasion of the distribution of prizes at the University College. Gopal also passed through the allotted period as a dresser under Mr. Liston with great credit. The gaining by Bholanath of two gold medals in two branches of study so very dissimilar as Botany and Comparative Anatomy, was the second instance on record since the foundation of the College of any one student obtaining such distinctions.

In November 1847 Gopal and Bholanath passed their final examination for the M. B. degree at the London University, and were placed in the first division, the former having been exempted from passing in Latin which was also necessary for the M.B. degree. For the higher degree of M.D., it was necessary for the students to pass examination in logic, Latin and the French languages, in addition to the regular professional studies. Gopal being

employed in practical studies in the Hospital found no time to devote to those extra subjects, and was consequently unable to go up for the degree of Doctor of Medicine, but he became one of the resident house physicians of the college Hospital, after passing a severe examination in Practical Medicine, and continued to discharge the duties of the post with great credit. In Bholanath's case, the rule which compels candidates for the M.D. degree to pass an additional year in hospital or general practice after obtaining the degree of M.B., was waived, in consideration of the practical experience he had already acquired, and his inability to remain in England for another year. So he went up for the higher degree at once, and obtained it; and both he and Gopal were permitted to return to India in January 1848 in company with Dr. Goodeve.

Soorjee Coomar passed the first examination for the degree of M.B. in August 1847 with much credit, and was placed in the first division. He also obtained certificates of distinction in the examination for honors; after which he proceeded to Germany in company with Professor Grant visiting Berlin, Prague, Breslaw, Munich, Frankfort, Bonn, the Hague, Leyden, Amsterdam, &c., and spending his time in examining the scientific Museums, works of art, etc., etc., as also in improving his knowledge of the German language. On return to London he entered as a dresser to Mr. Liston and engaged himself in the practical study of surgery in the hospital. At the expiration of his dressership he became clinical clerk to a physician, and was permitted by the Honorable the Court of Directors to remain at least another year in England at the expense of the Government to complete his studies.

Before returning to India, Dr. Goodeve solicited the Honorable Court of Directors to confer upon his pupils such rewards and appointments as their distinguished career in England would merit. The Court entirely acquiesced in the sentiments expressed by Dr. Goodeve, but left it to the Government of India to provide them with such employment as that authority would consider to be suitable. So when the two youths came back to India, Dr. Gopal Chunder Seal was appointed to the Resident Surgeoncy of the Female Hospital of the Calcutta Medical College with the additional duty of lecturing to the Hindustani class on Medicine

—appointments to which he would have been eligible even had he not proceeded to England. To Dr. Bholanath Bose was given the charge of a Dispensary established in a populous and suitable part of Calcutta.

Dr. Seal did not live long enough to shew what he was capable of. Dwarkanath's stay in England was too short to complete his medical education. Nevertheless he rendered good service at the Medical College for several years, and enjoyed a tolerably good practice in this town. Dr. Bholanath Bose showed great ability and tact in the discharge of the onerous duties of a Civil Surgeon for many years, and did much to bring indigenous drugs into use. Even in his death he did not forget his country and his profession. After providing his surviving relations with decent competence, he left the remainder of his fortune for the establishment of a prize to be awarded to the fourth-year matriculated student of the Calcutta Medical College who proves himself to be the most successful at bed side diagnosis of disease; and for the establishment of a dispensary and hospital in his own native village. His talents and ability would have found a better field in the Medical College; but his luck was against him, as the appointments in question were in the exclusive possession of the covenanted service.

Dr. Soorjee Coomar Goodeve Chuckerbutty studied at the University College for 5 years, and after having obtained the degree of Doctor of Medicine in the London University, and embraced Christianity, he returned to Calcutta in May 1850. On the last day of January of that year Sir Edward Ryan and Mr. Charles Hay Cameron addressed a letter to the Court of Directors, and requested them to appoint him to the Covenanted Medical Service. But their request was not complied with. Dr. Chuckerbutty was however appointed Assistant Physician to the Male Hospital attached to the Calcutta Medical College. After a hard struggle for several years, and at the solicitation of several distinguished personages he was eventually appointed Professor of *Materia Medica* in the College in which his study of medicine was commenced. Dr. Chuckerbutty distinguished himself greatly as a professor and a physician. He commanded the admiration and won the affection of his pupils and patients. As a specialist in diseases of the heart and lungs he was consulted

even by his European colleagues. He read many valuable papers on social, educational and sanitary subjects in the Bethune Society, the Bengal Social Science Association and other institutions of his time ; and his loss is still deplored in this country.

Well might the late Council of Education congratulate itself on the results of the experiment of sending medical students to England,—one of the most important and interesting in the history of Native Education,—which reflects “the highest honor on Dr. Goodeve, as well as on the successful graduates themselves and the institution in which they received the ground-work of their professional education.”

## EVIL EFFECTS OF VACCINATION.

BY DR. BEPIN BEHARI MAITRA, M.B.

In 1890, a Royal Commission was appointed to investigate the subject of vaccination. Dr. Alfred Russel Wallace had been collecting statistics for the last twenty years and his information went against the current opinions of medical men.

He has given several diagrammatic sketches, showing the fallacy of believing that vaccination has stamped out small-pox. If vaccination is really a preventive against small-pox, then we are to expect, that in proportion as the children are vaccinated, small-pox ought to diminish in exactly that proportion, but the statistics of small-pox mortality, show considerable variations. Taking the case of London, in 1780 the mortality from small-pox was more than 4000 per million. Since that time to 1800, when vaccination was introduced, deaths varied from 1000 to 4000 per million.

From 1800, the mortality began to fall, till it reached the lowest point of 500 per million after 1830. At this time less than one-fourth of the population was vaccinated ; but before attaining the lowest, there was a rise of nearly to 1000 immediately before the fall.

After 1840, about half the population were vaccinated, but the mortality has not gone below 500.

After 1850, vaccination was made compulsory ; the lowest rate of mortality attained was about 100 per million, a little before the year 1860. Since that time there has been a persistent rise of deaths till 1870, when the ratio was above 2000 per million.



If vaccination had really been a preventive of small-pox, such variation in mortality would never have occurred.

Similar statistics have been found in other countries, with the same experience. Dr. Wallace concludes, that the fall in mortality has been more due to improvements in Hygiene than to vaccination. The statistics of Scotland bears this well out—the mortality being greatest in big cities, less in small towns, and least in small villages; the mortality has in every place fallen in proportion to the improvements of hygienic condition.

Whether vaccination is of benefit to mankind or not, I am not going to discuss; but no body can deny that there result from it several evil effects which, in many cases, become more mischievous than vaccination itself. Some of these are immediate but most of them are remote.

In the Report, the following have been noticed:—

1. High fever, with vomiting and sometimes diarrhœa.
2. Repeated vomitings, diarrhœa, great agitation, convulsions, and finally death. After death, the body became covered entirely or in part with black or purple patches.
3. Acute fever lasting several days.
4. Acute pain in the arm, which had received the vaccine; the arm began to swell, the swelling extending down, as far as the wrist. Under the use of poultice, the swelling gradually disappeared in 8 days, but the pain lasted for 15 days.
5. Impetigo around the vaccine cicatrix.
6. Death in some cases within 24 hours; in others in 48 hours; the only complication after vaccination being diarrhœa and vomiting.
7. Herpes; simple acute pemphigus of newborn children; ecthyma; eruptions of impetigo localized around the cicatrix or general impetigo.
8. Cellulitis; lymphangitis; erysipelas; occasionally even cases of gangrene; lastly death in some cases from these.
9. Propagation of constitutional syphilis from the vaccine of a child suffering hereditary syphilis.

Dr. Compton Burnett, in his excellent little work on *Vaccinosis*, has very truly observed that “the protective power of vaccination is due to a *diseased* state of the body,” and that this diseased state or “*Vaccinosis* shows itself as a formidable acute disease that may terminate fatally, or it may manifest itself as a chronic affection,” and that “chronic vaccinosis more particularly lies completely beyond the ken of ordinary medicine,

and although it will sometimes turn up in literature as 'ill-effects of vaccination,' it is, nevertheless, but an unrecognised waif, much to the disadvantage of suffering mankind and of medical science." He has given cases illustrating the following sequelæ of Vaccination, with their successful treatment by Thuja :—

1. Actual acute vaccinia, and other serious acute disease threatening life, imbibed by infants from vaccinated mothers and wet-nurses.

2. Pustular eruptions on the skin.

3. Post-orbital neuralgia for twenty years.

4. Chronic headache of nine years' standing.

5. Enlargement of the glands.

6. Falling off of the hairs.

7. Habitual influenza, general illness and headache.

8. Aene of face and nose, and nasal dermatitis.

9. Chronic catarrh of the nose.

10. Diseases of the nails.

11. Ptosis or paralysis of the upper eyelids.

12. General paralysis.

13. Irritation of the spinal cord.

14. Scrivener's cramp, cephalalgia and enlarged spleen.

15. Neuralgia of eyes of nine years standing.

16. Arrested development and hemiparesis.

During the last few years I have been watching cases of vaccination and have noticed the following evil effects from it :—

1. Acquisition by the patient of a scrofulous constitution.

2. Enlargement of the lymphatic glands.

3. Liability to catch cold on the slightest exposure; thus giving rise to various sorts of lung mischief, as bronchitis and pneumonia. A few years back I read in one of the American Homœopathic Journals, that a veteran practitioner had stated, that ever since his first vaccination, in his twentieth year, he could not stand cold as he used to do before.

4. Enlargement of the liver and spleen, with various disorders, arising therefrom.

5. The loss of tone in the muscles.

6. Various eruptions and ulcerations in the skin.

7. Loss of digestive power.

8. Tympanites of the abdomen, constantly noticed ever since.

9. Inflammation of the tympanum of the ear.

10. Dysentery.

11. Fever.

12. In case there be no present illness, still at a future time during an attack of fever, or during the teething of children, severe form of diarrhœa or dysentery.

13. In some cases, without any marked illness, general malaise or a feeling of weakness for some time, which would recur several times.

14. In case of arm to arm vaccination, the second child acquires from the first hereditary syphilis or a scrofulous constitution.

15. If the child happens to be suffering from ulcerations, scabies, or other forms of skin disease, hepatic or splenic enlargement, vaccination has been found to aggravate them.

16. Inflammation of the axillary glands, a fortnight after the vaccination.

I give below the report of three cases treated by myself.

(a). Child, a year old; was vaccinated 18 days back. Had ulceration before the vaccination, which has not healed up as yet; since the last 4 days, suffering from dysentery. *Pulsatilla* 6 cured all the complaints in a few days.

(b). Child six years old; during the last epidemic of small-pox in Calcutta was vaccinated a second time. A day after the vaccination, the child had fever, which lasted three days; after a full intermission of two days, the fever reappeared lasting a week.

During this attack the whole body became jaundiced and the patient was put under the treatment of a Kaviraj, who managed to cure the Jaundice.

A week after the fever assumed the intermittent type when it presented the following symptoms:—Fever from 11 a.m. to 8 p.m. after which the temperature fell to normal. Chill absent; Heat with no particular symptoms. The child would pass the time walking about; sweat absent when the fever would leave, but during sleep copious sweat of the head the whole night.

I saw the child on the 23rd day of his second vaccination, or on the 22nd day of his fever. *Silicea* 200, one dose cured.

(c). Hepatic enlargement noticed a month after the child was vaccinated for the first time. I have not the record of this case with me, but so far as I remember, the child was cured with three doses of *Thuja* 200 given at intervals of a week, and then a fortnight after two doses of *Silicea* 200 at intervals of a week.

The principal medicines for treating this disease are *Thuja* and *Silicea*. If even they fail to cure they abate the disease and pave the way for other constitutional drugs, such as *Calcarea*, *Phosphorus*, *Aurum*, *Arsenic*, &c.

## STRAY LEAVES FROM THE DIARY OF AN INDIAN PHYSICIAN.

### II.

#### *More about Astrology.*

I thought I had done with astrology. I thought that what I had said about it was enough to convince any one, who has any acquaintance with methods of scientific investigation, that even the long period, which may be supposed to have elapsed for the accumulation of experience, was not enough to establish it as a science. A young astrologer, or, as he calls himself, a student who has set to himself the task of inquiring into the truth of astrology, tells me that I should not judge it *à priori*, as I have done in the last number of your journal. He reminded me that I was as prejudiced against homœopathy as I am now against astrology, that it was only a practical knowledge of homœopathy which made me a convert to the system, and, he is almost confident, that if I deal with astrology as I have done with homœopathy, that is, if I investigate its claims in the same practical manner as I investigated the claims of homœopathy, I am sure to end in becoming a convert to astrology.

I must confess that I have been obliged to admit to a certain extent the cogency of his argument. I admit that we ought not to condemn any system without a fair examination of its pretensions, especially when that system happens to be a body of doctrines built up by the human mind in the long course of ages. I have no hesitation in expressing my full concurrence in the opinion expressed by a writer in the *Spiritualist* for May 2nd, 1897, that "at the hands of scholars, at least, astrology should be protected from insult by its fathomless antiquity, its universality, and the great names of its believers, in ancient, mediæval, and even modern times." But I must at the same time maintain that however it may and ought to be protected from insult, that is, however we should respect its sincere believers and scrupulously avoid calling them names on the assumed monopoly of knowledge on our side, it cannot possibly be protected from being demolished and exploded if it has really no foundation in truth. Neither its antiquity, nor its universality, nor the great authority of its votaries will avail in upholding it if it is founded upon fancies and not upon facts. As regards authority

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we may mention that just as there have been highly intellectual men who were believers in astrology, so there were equally great men who were disbelievers. Thus Aristarchus of Samos, Martianus Capella, both of whom had anticipated Copernicus, as also Cicero, Favorinus, Sextus Empiricus, Juvenal, and La Fontaine were all determined opponents of astrology.

Did Shakspeare express his disbelief in astrology when he made the bastard Edmund (in his *King Lear*) soliloquise thus?—"This is the excellent foppery of the world! that, when we are sick in fortune,—often the surfeit of our behaviour,—we make guilty of our disasters, the sun, the moon, and the stars: as if we were villains by necessity; fools by heavenly compulsion; knaves, thieves, and treachers by spherical preponderance; drunkards, liars, and adulterers, by an enforced obedience of planetary influence; and all that we are evil in, by a divine thrusting on: an admirable evasion of whoremaster man, to lay his goatish disposition to the charge of a star!"

It is related of Sir Isaac Newton that "a desire to know whether there was anything in judicial astrology first put him upon studying mathematics. He discovered the emptiness of that study as soon as he erected a figure." This was when Newton was only twenty-four years old. The story is likely to be apocryphal as it is so unlike Newton, the patient student of nature and the cautious philosopher who could wait years before giving out his discoveries. Or, was there something in the figures of the heavens from which astrologers pretend to predict the destinies of individuals and nations, through which Newton instinctively, that is, with the acuteness of genius, saw the hollowness of astrology?

Not only were there great men who were disbelievers in astrology, but there were some among the believers who discovered what they considered their mistake late in life. Thus the great English poet Chaucer, whose devotion to astrology in early life is evidenced by his *Treatise on the Astrolabe*, betrays his loss of faith in it in his later Tales. Tychô Brahé, who was a devoted student of astrology from his fifteenth year, who had "not only carefully studied the comet of 1577 as an astronomer, but as an astrologer predicted, from its appearance, that: 'In the North, in Finland, there should be born a Prince who should lay waste Germany, and

vanish in 1632," which prediction would seem to have been literally fulfilled in the well known fact that Gustavus Adolphus was born in Finland, overran Germany, and died in 1632;—this Tycho Brahé, notwithstanding his almost life-long and devoted study of what he looked upon as a true science, and notwithstanding the remarkable fulfilment of his own most remarkable astrological prophecy, is said to have abandoned astrology only a few years before his death. Did he think that his predictions were but lucky hits?

I must say that these beliefs and disbeliefs, and even the renunciation of their faith by those who were once believers, do not weigh much in my mind as regards the truth of astrology. Astrology must stand or fall by its own merits. And this is what its enlightened advocates claim for it. It is gratifying to see that some of the eminent astrologers of the present day, among whom in England is Mr. Alfred J. Pearce, pupil of the late Commander Morrison, who wrote under the nom-de-plume of Zadkiel, boldly challenge a searching inquiry into the truth of their science. "We are often asked," says Mr. Pearce in the preface to the 2nd Vol. of his *Text-Book of Astrology* (1889), "Why is it that the great and learned men of the present century deny the truth of Astrology?" "The answer is," says he, "that they have never fairly and patiently investigated it. The vexed question of the truth of astrology cannot be determined by *à priori* reasoning. It must be thoroughly investigated."

He goes on with great truth to remark: "Some opponents think to crush astrology with the dictum that it is opposed to common sense. But, before astrology can be tried by this standard, knowledge and justness are essential—for 'common sense' is usually a cloak to cover a vast amount of prejudice. Without entering into the logical definition of what is common sense, we may ask such opponents what is their common sense? If it be opposed to scientific sense it is simply common ignorance. Common sense, about seventy years ago, ridiculed the idea of travelling at the rate of fifty miles per hour by the locomotive steam engine. Dr. Lardner's common sense led him to ridicule the idea of crossing the Atlantic Ocean in a steamship; he pronounced it visionary, but nevertheless he subsequently availed himself of a steamship when he migrated to America. Sir

Humphry Davy's common sense led him, in the course of a lecture at the Royal Institution, to compare the project of lighting up towns with gas conveyed by pipes to that of the Yorkshire man who proposed to dissipate London fogs by setting up wind mills. Common sense led to the persecution of Harvey, even after he demonstrated that the blood circulated. Such common sense, which draws conclusions from *à priori* reasoning, is the most fallacious mode of judging of an experimental science." "An experimental science can only be proved or refuted by patient examination."

Here is a challenge which no seeker after truth, no honest inquirer of nature, ought to refuse to take up. If astrology is really an experimental science as it is here asserted to be, if it is capable of verification by observation, or better by both observation and experiment, we ought to put it to these tests, and leave the decision to the result of the inquiry thus instituted.

All this being conceded, the question that we have first to take up is—Is astrology an experimental science? To find the proper answer to this question we have to see what is understood by astrology by the astrologers themselves. In order to do this let us take a rapid glance at the origin and history of Astrology.

Astrology, as its etymology signifies, is a discourse on the stars. Now as every shining body visible in the heavens from the earth was looked upon as a star, Astrology ought to mean the science of the heavenly bodies. In its primitive stage this science concerned itself with observation of the relative positions and motions of the heavenly bodies. As knowledge grew it was easy for the cultivator of the science or the steady observer to see that these motions were not irregular but were governed by fixed laws, that they were periodic, that the periods were different for different bodies, and that hence they were in many cases, predictable. Here knowledge conferred on its cultivator power, the power of fore-sight. With the further growth of knowledge of the heavenly bodies the periodical motions of some of them, notably of the sun and the moon, and their positions with each other or as they have been called their mutual aspects, were found to coincide with or to be followed by periodical occurrences of events in the earth, such as the seasons and the tides. It was natural

for the human mind to connect them as cause and effect. In course of time other occurrences than the seasons and the tides, even the events of men's lives, came to be associated with the motions and aspects of the heavenly bodies.

It is easy to see from the above considerations how astrology from being originally a pure science of the heavenly bodies became developed into two branches,—one which concerned itself with the heavenly bodies alone, and may be called Astrology Proper, but has been generally called Natural Astrology; and another which concerns itself with the positions and motions of those bodies so far as they affect the events of the earth, and may be called Mundane Astrology, but has been called Judicial Astrology. The two branches remained united for a long time, that is, the cultivators of the one were cultivators of the other also. It is not easy to say when their separation commenced. This may be said to have begun when scepticism about the pretensions of the second branch first dawned upon the mind of a cultivator of the science. Practically the separation had not taken place so late as the time of Claudius Ptolemæus who flourished about a century and half of the Christian era. But there are indications of the separation, at least of the differentiation, of the two branches even in the writings of this celebrated astronomer and astrologer.

Thus, in the very first chapter of his *Tetrabiblos*, he says: "The studies preliminary to astronomical prognostication, O Syrus! are two: the one, first alike in order and in power, leads to the knowledge of the figurations of the Sun, the Moon, and the stars; and of their relative aspects to each other, and to the earth: the other takes into consideration the changes which their aspects create, by means of their natural properties, in objects under their influence." And he calls the first, which is Astrology proper, "complete in itself, and of essential utility even without being blended with the second;" with reference to which latter he wisely remarks: "and since the material quality of the objects acted upon renders them weak and variable, and difficult to be accurately apprehended, no positive or infallible rules (as were given in detailing the first doctrine, which is always governed by the same immutable laws) can be here set forth." The author thus not only makes a distinction between the two branches, but gives an inferior position to the second.



It is a fact that while Astrology proper advanced but little; as it could not without the telescope, remaining stagnant down to the time of Copernicus, Judicial Astrology attained an exuberant development, and has been till lately exercising a most despotic influence over the actions of individuals and nations. It is equally a fact, that with the independent development of the former, since the invention of the telescope and the discovery of the true character of the solar system as but a unit of the Stellar Universe, the latter has come into disfavor and is now almost looked upon as a false science. The former is now leading a separate life as Astronomy, and every day almost is receiving mighty and marvellous development with the help of the other sciences physical and chemical. The word astrology is now restricted to the latter branch which, as we have seen, came to be an offshoot of the original, the primitive science of the heavenly bodies. We have to examine the claims and pretensions of the science or so-called science in this its restricted sense.

According to Commander Morrison, one of its distinguished modern exponents,—“The science of Astrology consists of four branches: they are—1, *Nativities*, or the art of foreseeing, from the figure of the heavens at the moment of birth, the future fate and character of individuals; 2, *Mundane Astrology*, or the art of foreseeing, by the positions of the heavenly bodies at certain periods, the circumstances of nations, such as wars, pestilences, inundations, earth-quakes, &c., &c.; 3, *Atmospheric Astrology*, or the art of foreseeing, by the positions of the planets at the periods of the Sun and Moon being in mutual aspect, and some other circumstances, the quality of the weather at any required time or place; 4, *Horary Astrology*, or the art of foreseeing, by the positions of the heavens, at any period when an individual may be anxious about the matter, the result of any business or circumstance whatever.”

The English language is not my mother tongue, and I cannot pretend to criticise the English of Englishmen, especially of one who is described by Mr. Pearce “as a practical astronomer, as a mathematician, as a meteorologist, and as a philologist.” I cannot, however, help remarking that I did not expect such loose language as is to be found in the above from such a distinguished man. To speak of the *Science* of Astrology as divided into four

*Arts*, is certainly not correct logically, and we believe, cannot be so even astrologically. But without quarelling about the inaccuracy of Commander Morrison's language, I may point out that he has omitted one most important division of his favorite science, namely, the doctrine of *Elections* by which astrology enables us to elect "propitious moments for the commencement of new and important works;" a division of the science which is as old as the science itself. Mr. Pearce has constituted yet another division under the title of Medical Astrology, but this is, properly speaking, but a subdivision of what has been, not very properly, called Mundane Astrology.

Including *Elections* we have then five branches of Astrology. Considering the subject-matter of each as defined above, I fail to see how any of them can have any pretension to being elevated to the rank of an *experimental* science. It does not require the aid of occult knowledge to convince any body that experiment is out of the question with the heavenly bodies. All that we can do is to patiently observe their motions and configurations, and the coincidences of these motions and configurations with changes that are occurring in bodies on the earth. It is only when the coincidences are invariable that we may assert of the former as being the causes of the latter. If we take each branch and examine it minutely we shall be able to see how far it would be possible to arrive at such an inductive result.

Let us take the doctrine of Nativities, or Genethliology as it is called. "The questions to be solved," according to Ptolemy, "in regard to the actual circumstances of the birth itself, are whether the production will be male or female; twins, or even more; whether it will be monstrous; and whether it will be reared. The questions of the periods subsequent to the birth relate first to the duration of life, (which is distinct from the question of rearing,) then to the shape and figure of the body, to the bodily affections, and to injuries or defects in the members. After these, further inquiry is instituted as to the quality of the mind, and the mental affections; then, as to fortune, in regard to rank and honors as well as to wealth. In succession to these, the character of the employment or profession is sought out; then, the questions relating to marriage and offspring, and to consentaneous friendship, are to be considered; then, that con-

cerning travel, and, lastly, that concerning the kind of death which awaits the native."

Let your readers imagine for a moment what a multiplicity of questions are involved in the above respecting only one individual born during only one aspect of the heavenly bodies, or one configuration of the heavens. How varied these aspects or configurations are, and what an infinite variety of questions have to be solved about numberless individuals born during each of them. As these configurations determine the life and character of the individuals born under them down to the minutest particular of accident, diseases, marriage, offspring, &c., can it be imagined by what natural processes these influences could possibly have been discovered? Induction extended through endless time would not accomplish the feat. But astrologers do not pretend that their science came down upon earth through supernatural inspiration. That it has not done so is evident from the difference among themselves about some fundamental points.

Thus with respect to parents Ptolemy says: "In conformity with nature, the Sun and Saturn are allotted to the person of the father; and the Moon and Venus to that of the mother; and the mode in which these luminaries and planets may be found posited, with reference to each other as well as to other planets and stars, will intimate the situation of affairs affecting the parents."

Upon this James Wilson, in his *Dictionary of Astrology*, remarks: "There is much absurdity in this doctrine, and the chapter that treats of it is the most lame and ill-defined in the whole book. A bare perusal of it will show that Ptolemy understood nothing of the matter, but inserted it merely from conjecture. From my own experience I can safely affirm that neither Saturn nor Venus can be in any way connected with the fate of the parents; nor can any judgment be formed of them from the condition of those planets."

What has been called Mundane or State Astrology is scarcely less complicated than Genethialogy, and can only be established as a science by observations extending over an equally indefinite length of time. "There can be no question," says Mr. Pearce, "that Mundane astrology was based upon the results of a long series of observations, as Manilius avers, the inductive method

being followed in reducing it to a science." He gives the relationship of the several *signs of the Zodiac* with certain *countries* and *cities* of the world as follows:—*Aries* influences *Britain, Germany, Denmark, Lesser Poland, Palestine, Syria, or Judea. Towns: Brunswick, Capua, &c.*" and so on through the twelve signs, and the principal countries and towns. Nor is this all. The nature and properties of the planets, of the Sun and the Moon, of the chief Stars, as regards their influences on each place have had to be determined by observation, before wars, revolutions, the rise and fall of empires, plague, pestilence, famine, &c., &c., could be foretold. How long must these observations have been made in order to arrive at inductions necessary for the discoveries of those influences? Admitting that man has been capable of making such observations ever since he has been ushered into existence, would historic and pre-historic times added together suffice for the purpose? If it is not pretended that the ancients had a more recondite mode of observation by which they could see through things direct without the aid of multiplicity of instances, then I may well ask without fear of contradiction, what but the crudest fancy could endow Mars with hot and warlike qualities; Jupiter with a temperate nature inclining him to be the harbinger of peace and prosperity; Saturn with a malignant nature which impels him to stir up the most dreadful feuds; Venus with the power, when alone in dominion, of bringing glory, honor, and joy to all mankind, making marriages happy, the weather delightful, the air pure and salubrious, voyages safe and prosperous, &c.; Mercury with the power of regulating the ceremonies of religion, the affairs of the executive government, as well as manners, customs, and laws; and so on, and so on?

As regards *Horary Astrology*, we cannot help remarking that it appears to us the strangest thing which the human mind could evolve. Zadkiel (Commander Morrison), after having pointed out the difficulties of the other branches, makes the following confident remarks about it:—"But *Horary Astrology*, the chief subject in this work, may be specially learned by any person of even moderate abilities; and may, as far as regards its elementary difficulties, be mastered in a few days' study. It may be well understood, and reduced to constant practice in less than a quarter of a year, and no one will find himself

at a loss for occasions to test its reality or its utility, for his own avocations, and the affairs of his friends, will offer these almost daily. If a proposition of *any nature* be made to any individual, about the result of which he is anxious, and therefore uncertain whether to accede to it or not, let him but note the hour and minute when it was *first* made, and erect a figure of the heavens, as herein taught, and his doubts will be instantly resolved. He may thus, in five minutes, learn infallibly whether the affair will succeed or not: and, consequently, whether it is prudent to adopt the offer made or not. If he examine the sign on the 1st house of the figure, the planet therein, or the planet ruling the sign, *will exactly describe the party making the offer*, both in person and character; and this may at once convince the inquirer for truth of the reality of the principles of the science. Moreover, the descending sign, &c. will *describe his own person and character*; a farther proof of the truth of the science, if he require it. Here, then, is a ready test of the *truth* of Astrology. Will its adversaries dare to make its applications? It would, methinks, be better than relaxing the broad muscles, which ever denote ignorance and surprise, the feelings which, combined, are the undoubted source of laughter; the only argument of the idiot, the ready resource of the ignorant."

On this subject of Horary Astrology, the applications of which Zadkiel believed furnish "a ready test of the truth of Astrology," his own devoted disciple Mr. Pearce thus delivers himself, which it will be seen, goes not a little against the master: "We must here enter our protest against the 'infallibility' claimed for the rules of horary astrology by the modern editor of 'Lily's Introduction to Astrology,' notwithstanding that that work was 'divested of the superstition of the 17th Century,' and 'numerous emendations' made by the learned editor. We also protest most strongly against the guilt of a person charged with murder, or any offence against the laws, being determined by the signification of a figure of the heavens drawn for the moment of a question being asked by a newspaper reader wholly unconnected with such person, or of a figure cast for the moment of arrest of the prisoner, or for that of being brought to trial. We likewise protest most earnestly against the honour of a woman, the honesty of a man, or the legitimacy of a child, being made the subject of horary question,

and perchance bandied about by pretenders to astrology and self-styled 'Professors.' "

Bacon, whom I quoted in my first communication, as speaking disparagingly of horoscopes and the distribution of houses, thus speaks of some of the above branches of astrology: "Those fatalities, that the hour of nativity or conception influences the fortune of the birth, the hour of commencement the fortune of the enterprise, the hour of inquiry the fortune of the thing inquired into, and in short, the doctrines of *nativities*, *elections*, *inquiries*, and the like frivolities, have in my judgment for the most part nothing sure and solid, and are plainly refuted by physical reasons." Bacon, it should be remembered, does not altogether reject astrology, but would have it purified, and when thus purged of fancies and fallacies he would call it Sane Astrology.

With respect to Atmospheric Astrology, or as it has been more appropriately called by Mr. Pearce Astro-meteorology, I must say that in this matter the ancients were far in advance of the moderns. Meteorology, as at present pursued, is well-nigh a failure, and this is simply because we have confined our observations to the immediate phenomena of our narrow limited atmosphere without going beyond to their efficient producing and regulating causes. We take very little notice of the sun itself, scarcely any of the moon, and none at all of the planets and stars. It is a great mistake to think that the sun is the only source of all atmospheric phenomena, and that it exercises its powerful influence only by its heat. The sun itself is powerfully affected by the planets, which thus have an indirect influence upon terrestrial phenomena. But they must have a direct action also. It is their direct and indirect actions in conjunction, in opposition, and in other aspects that we must study in order that we may understand and interpret the phenomena in our atmosphere, on the surface and in the interior of our planet. And in the pursuit of this study we cannot do better than follow the lead of the ancients, that is of astrology. With much that requires correction we would find much, indeed a vast amount, that is fact and most useful fact that may be turned to important uses.

## REVIEW.

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*Veterinary Homœopathy in its Application to the Horse; including a Code of Common Suggestive Symptoms.* By John Sutcliffe Hurndall, Member of the Royal College of Veterinary Surgeons, England. Boericke & Tafel, Philadelphia, 1896.

We owe an apology to the author, to the publishers, and to our readers, for having delayed so long in noticing this very useful work which, if we mistake not, is as yet the only homœopathic veterinary work devoted exclusively to the horse. The previous publications on Veterinary Practice, so far as we have been able to ascertain, take in more of our domestic animals than the horse. Thus, the Text-book of Veterinary Homœopathic Practice by Mr. Harry Gooday gives treatment of diseases of the Horse, Dog, Ox, Cow, Sheep, and Pig; the Veterinary Vade Mecum by Mr. Lord and Messrs. Rush is a manual on the Horse, Cow, Dog, and Sheep; and A Manual of Homœopathic Veterinary Practice published by F. E. Boericke of Philadelphia is designed for Horses, all kinds of domestic animals and Fowls. It is no small glory of Homœopathy that though its drugs have been proved only on the human subject they should be found as useful in the inferior animals as in man, thus proving at once the intimate relationship of the latter with the former and the truth of the homœopathic law of cure.

The author of the work under review tells us in the Preface that he makes no claim for the production of a scientific work, and that he has attempted to cater to those who have no acquaintance either with medicine or disease but who at the same time are thrown upon their own resources when their equine charges fall ill. And yet he has produced a work which may be profitably read by scientific veterinarians.

In the Introduction the author has attempted to expound the tenets of homœopathy in order that "those who desire to avail themselves of the work may be able to comprehend the difference between the man who has a principle to guide him in the selection of a drug for any given ailment, and he who simply does so by guess work on the off chance that a cure may be hit upon." He "feels that he has but feebly realized the objects aimed at," and thinks "the difficulties have rather been enhanced by reason

of the necessity laid upon him by the publishers to avoid, as much as possible, technical professional terms." We are glad to admit that he has done this part of his work pretty satisfactorily so far as laymen are concerned, but we do not see how the necessity he speaks of could have been answerable for such a mistake as. "Allopathy means, etymologically, treating by opposites." Treating by opposites is Enantiopathy, not Allopathy which is treating by differentials, that is, by remedies which have the relation neither of similarity nor of opposition to the symptoms of the disease. This may be considered a small matter in a work on Veterinary Homœopathy, but precision is essential in everything, and especially in homœopathic writings.

The author has very wisely pointed out the limits of the homœopathic law, in order to prevent discredit being thrown upon the principle and great disappointment being experienced by persons who may be attempting an impossibility. Thus: "It must be distinctly understood," says he, "that as with the human subject, so, and indeed more also, with horses it frequently happens that circumstances calling for very careful attention arise in which the science of treating animals by means of drugs (therapeutics) will not meet the case adequately, or, indeed, at all; for instance, a horse meets with an injury due to an unavoidable accident, or he has his foot severely pricked while being shod; again, you may own a mare that is with foal, which, by reason of its having got into an unnatural position cannot be born without assistance; these are cases calling for operative surgery; and while it is not impossible that the condition of the patient may be such, as a consequence of these circumstances to require the administration of drugs by way of assistance, the difficulties could not be got over by drugs alone; operative surgery here would be the chief factor in the course of treatment."

Besides the Introduction there are three preliminary chapters, on Hygiene and Sanitation, on Diagnosis, and on the Strength of Drugs and the Dose, in which those, for whom the book is designed, will find much useful matter.

In the Chapter on Hygiene and Sanitation some very good and sound advice is given about ventilation, drainage, light, water, &c.

Here is what the author says about ventilation: "Fresh air must



have a means of ingress, and foul air a means of egress peculiar to each, and that altogether separate from doors and windows ; the requirements may be best provided in the following manner : The walls of the stable should be from fourteen to eighteen inches thick, and the inside should be either plastered or faced with glazed bricks, about twelve inches above the level of the ground outside. A longitudinal channel should be left in the centre of the wall about four and half inches wide and nine inches deep, and on a level with this channel, both inside and out, perforated bricks should be laid alternately ; that is to say, the outside perforated bricks should not be directly opposite those inside, but alternated with them. The object of this is, of course, patent to any one, viz., to prevent direct ingress of the fresh air, and so obviate a draught, at the same time insuring a constant, continuous and gentle diffusion over the whole building."

On the vexed question—"When is the best time to allow a hard-worked horse to drink?" the author very properly asks the practical man to bear in mind two points in the anatomy of the horse which are very remarkable, viz., (1) that his stomach compared with his bulk is decidedly small; indeed, relatively is not half so large, though absolutely it is more than five times as large, as that of the human being; (2) that his Cæcum is very large, capable of holding about four gallons, and serves the purpose of what may be described a *water stomach*. So that "when a horse drinks, the fluid does not remain any length of time in the digestive stomach but quickly passes on to the Cæcum and from thence is distributed over the body. Now this being the case it points to the desirability of allowing the horse to partake of such an amount of fluid as the natural call of thirst demands *before* taking food, because the water which has passed on to the Cæcum will serve the purpose of slaking thirst without diluting or interfering with the normal digestive secretions which begin to pour out as soon as masticated food enters the organ and hence the process of digestion can go on without interruption, and the assimilation of the alimentary material in its physiologically natural condition will take place; if water is given *after* feeding, the natural digestive fluids are diluted, they cannot act in this state upon the alimentary material and digestion is arrested until the fluid has passed on to its proper locality the Cæcum."

In the Chapter on Diagnosis the author makes some observations on the temperature, the pulse, and the respiration. These observations are not so full as one might desire, especially as the book is intended for laymen. Thus the author describes the clinical thermometer minutely but says not a word about the locality or part of the body where the temperature may be best taken. It is true that by common consent the thermometer is inserted into the rectum, or, if the animal is irritable, between the opposed inner surfaces of the thighs; but as the author is so particular even about what may be looked upon as trifles, he should have been explicit upon this important point. As regards the pulse the author simply says that the ordinary number varies from 36 to 40, in heavy-dispositioned animal it may be as low as 32, and in the irritable and nervous as high as 45. He says nothing of variations according to the breed and variety and age; in the colt being as rapid as 45 to 55, in the smaller varieties and higher breeds being 40 to 46.

We are glad to see that on one very important point the author's advice is humane and scientific. "There is one practice," says he, "very common amongst veterinary surgeons, as well as stablemen, in cases that so frequently happen among draught horses which the author, from practical experience, strongly condemns, namely, the custom of keeping a horse continually on the move when suffering from any pain that naturally induces him to roll. '*Keep him on the legs,*' the man says, '*don't let him go down!*' The author condemns the practice as absolute nonsense on the one hand and gross cruelty on the other, for by preventing a horse from rolling, you frustrate the only thing he can do to afford himself some measure of relief; by one's own experience when suffering from the '*belly-ache,*' it is quite certain that relief does follow a good roll, and if in the man, why not in the horse?"

In the Chapter on the Strength of Drugs and the Dose, the following remarks have reference to the subject proper of the work, namely veterinary practice: "Some persons have an idea that animals require stronger medicine, and very much more of it at a dose, than do human beings, physiologically. We cannot now, nor ever could, see a reason for this, and experience certainly does not confirm the suggestion. Some allowance certainly is made, as a matter of practice, for size and bulk of

body, but whether it is absolutely necessary, is open to considerable doubt." Our experience in the treatment of inferior animals has been very limited, but even this limited experience has taught us that we have to administer more of a medicine at a dose (no matter what the attenuation) in their case than in the case of human patients, and the author himself makes the same recommendation, for he says that, "as a rule to the larger animals such as the horse, it is usual to administer from ten to fifteen drops per dose whatever the attenuation, being guided more by the condition of the malady—whether the same is acute or chronic—than by the precise attenuation of the drug." Now, no practitioner would think of prescribing ten to fifteen drops of any attenuation to a human patient. Drop doses are the largest we have been prescribing, and we find them sufficient, but for animals we find five to fifteen drops necessary to produce any effect. We think the reason for this is to be found in the fact that the organization of man, especially his nervous system, is much finer and more delicate than that of animals.

In this Chapter the author has expressed certain opinions the accuracy of which may well be questioned. Thus—"During each progressive process of trituration the various particles of the medicinal agent become more finely subdivided, and the author is of opinion that not only is it to this very minute subdivision of particles that the agent derives its activity, but that it develops an inherent power not previously possessed." We cannot understand how a power that is *inherent* in the particles was not previously possessed by them, previously, that is, to trituration. All that trituration does, is to break up the mass of a substance into fragments, and thus extend its surface and multiply its points of contact with the tissues of the organism.

Another opinion of the author, which he says is based on his practical experience, is that the preparations under the decimal scale are more powerful than the corresponding ones under the centesimal. For instance, the sixth decimal is more powerful than the third centesimal, though both contain the same quantity of drug material, simply because, he says, the former has been triturated six, the latter only three, times. This can only be true when the times taken for each trituration, decimal or centesimal, are the same, for in that case the centesimal preparations

had less time for the subdivision of particles, and consequently had less chance of being thoroughly done, than the decimal ones. But if the times are doubled in the former we do not see why the subdivision may not be as good as in the latter.

A quite new and very useful feature of the work is the "Code of Suggestive Symptoms" given at the end, the significance and importance of which will be understood from the author's words in the Preface: "With a view to render it comparatively easy to discover a given ailment, I have prepared a list of prominent suggestive symptoms, such as are common to the observation of any man who is qualified to undertake the responsibility of managing or superintending a stable; and in juxtaposition therewith, the names of the various diseases in which these symptoms occur; on a careful perusal of this portion of the work it will be observed that quite a large proportion of these symptoms occur in a number of different diseases, and, perhaps, it may strike some persons that, after all, the list of suggestive symptoms is not of much help; but my advice is, that when a horse appears unwell, a note should be made of all the chief symptoms observable; thereafter refer to the list, and the disease which covers the greater number of symptoms should be studied in order to determine if the case in hand answers to the fuller description therein contained." The plan of the Code is good, and the symptoms having been arranged alphabetically, the work of reference has been rendered easy. The Code, however, is susceptible of considerable improvement. There should have been names of more diseases in juxtaposition with the symptoms than have been given. Thus to take only a couple of instances: *Abscesses, internal* can scarcely be looked upon as a suggestive symptom. After *Unconsciousness*, the author places *Anthrax* and omits *Cerebritis*.

We have nothing but praise for the body of the work. The symptoms of the diseases have been well described, and the indications for drug selection given are what they should be.

We should be ill performing our functions as reviewer if we omitted to say that a serious fault of the work is the inordinate lengths of its paragraphs and sentences. The punctuation is outrageously bad. We almost suspect the author had no opportunity of correcting the proof.

## EDITOR'S NOTES.

**Medicinal Plants and Food Grains of India.**

We are glad to learn from *Nature* (19th Nov. 1896.) that among the work of the scientific and technical Department of the Imperial Institute, the chemical examination and therapeutic trial of the constituents of some of the well known Indian medicinal plants are being carried on, in view to determining their real medical value. A systematic examination of the constituents of Indian food grains is also conducted with the object of ascertaining their chief constituents, and their dietetic value. The effect which the climate, altitude and other conditions may have upon the various well known grains produced in this country, is being enquired into at the same time. For the latter subjects, the services of Professor B. H. Church and of Mr. Horace Brown, both fellows of the Royal Society, have been secured.

**A Rare Variety of Vicarious Menstruation.**

The following is reproduced from the *New York Medical Times* of December 1896 :—

“Dr. Oswiemiński has observed a rare form of vicarious menstruation, where a female, menstruating first in her eighteenth year, married at the age of twenty-four. After a childless marriage of ten years her husband died. Three months before his death her menses disappeared for the first time, while at the same time a colossal swelling of the right mammary gland appeared in their stead. A large quantity of colostrum could be pressed out. At the same time there were pains in the breast which radiated into the arm. These symptoms lasted for three days and gradually disappeared, to reappear every month in place of the regular menses. The left breast was unaffected. He has observed this peculiar phenomenon six times.”—*Wiener Medizinische Presse*, No. 42, 1895.

**Systematic Poisoning.**

We read from time to time of systematic traders in murder and robbery and professional poisoners, but we question whether it would be easy to beat the history of crime in this direction recently brought to light in the trial of a native prisoner at a court in Cawnpore. The criminal in this instance is a native of India, one Bhadaiyan Kori, who systematically carried on his trade as a professional poisoner for a considerable time for the purpose of plundering his victims. He employed the agents usually adopted in India for the purpose—viz,

dhatura and probably arsenic also. His method was to join travelling natives and to mix his drugs with their food in order to rob them of their clothing and effects. The evidence against him was of a conclusive kind, and as he made a complete confession of his crimes there is no room for doubt about the matter. It is, we believe, a curious fact that in cases of poisoning by dhatura in India a difficulty sometimes arises from the poisoner cunningly simulating illness and imitating the symptoms of the poisoned so that a medical man is likely to be deceived and to apply the same remedies to all alike—to the criminal poisoner and his victims. But there is nothing of this sort in the present case.—*Lancet*, January 2.

### Fœtal Inclusion in a Boy.

F. BERGKAMMER (*Deuts. med. Woch.*, No. 44, October 29th, 1896) relates the case of an infant, 11 months old, affected with distension of the abdomen and frequency of micturition. Palpation revealed a fluctuating tumour reaching as high as the umbilicus. It was thought to be the distended bladder, but micturition did not diminish its size and catheterisation was not successful; and although many other conditions suggested themselves, the abdomen was opened without a definite diagnosis having been formed. It was found that a partly cystic, partly solid, mass lay in the pelvis between the greatly-distended bladder and the rectum, and about 150 c.cms. of clear fluid, alkaline in reaction, and with a specific gravity of 1010, were drawn off. With difficulty the rest of the tumour was shelled out from its connective tissue capsule. The boy died suddenly from convulsions on the day following the operation. The necropsy revealed an enlarged bladder and dilated ureters and kidneys. The extirpated tumour (a polycystic teratoma) was oval in form, and contained flat bones and hyaline cartilage, striped muscular fibres, hairs, and nerves. Its walls, instead of being cutaneous in character as is common in dermoids, resembled more closely a serous membrane. It was, therefore, a case of *fœtus in fœtu*; the rudimentary parasite was situated in the pelvis of the autopsite, and had interfered with the functions of the bladder.—*Brit. Med. Jour.*, Dec. 5, 1896.

### Influence of Reading on Sight.

Referring to the wide prevalence of myopia, astigmatism and kindred disorders in the civilised world,—the effect apparently of reading,—*Nature* (Nov. 26th) remarks that myopia would be rare if the eye were never fatigued. Our contemporary then gives the

following conclusions arrived at by Harold Griffing and S. I. Franz, in a paper on the physical conditions of fatigue in reading, and the best means of avoiding it, published in the *Psychological Review* :—

“From their experiments the authors conclude that the size of type is the all-important condition of visual fatigue. No type less than 1.5 mm. in height should be used, the fatigue increasing rapidly even before the size becomes as small as this. The intensity of illumination is apparently of little consequence within the limits of daylight in well-lighted rooms. Very low intensities, less than from 3 to 10 candlemetres, are sources of even greater fatigue than small type, and 100 c.m. may be considered a safe limit. White light rather than yellow light should be used for artificial illumination. The form of the type is of less importance than the thickness of the letters. White paper should be used, though it is possible that the greater amount of light reflected from pure white paper may cause some fatigue. Additional ‘leading’ or spacing between the lines is also recommended. These conclusions should be especially known to publishers of school books.”

### M. Nobel's Bequest for the Promotion of Science.

We learn from *Nature* (7th January 1897) that the late M. Alfred Nobel has left nearly the whole of his fortune amounting to about two millions sterling to be converted into an international fund for the advancement of scientific research. The yearly interest from this fund is to be divided into five equal portions. The first of these is to be allotted as a prize for the most important discovery in physics, the second for the principal chemical discovery or improvement, the third for the chief discovery in physiology or medicine, the fourth for the most distinguished literary contribution in the same field; while the fifth “is to be allotted to whomsoever may have achieved the most, or done the best, to promote the cause of peace.” All these prizes are open to Scandinavians and foreigners alike. M. Noble was a Swede by birth, having been born at Stockholm in 1833. He was educated at St. Petersburg, and subsequently assisted his father in his engineering shops at Stockholm. On May 7, 1867, he published his great “Dynamite, or Nobel's Safety Powder” paper, which is said to have “inaugurated a new era in the entire world of explosives, and in many branches of engineering.” M. Nobel was never married. “The result of this very generous endowment to science will,” it is hoped, “be an ever-growing monument to M. Nobel, built up of contributions to natural knowledge.” We hope our young men will

not be slow to take advantage of this opportunity at least to carry on researches in medicine, if not in physics or chemistry.

### **The Causes of Appendicitis.**

Some points of interest in connexion with the pathogeny of appendicitis were discussed at a recent meeting of the French Société de Chirurgie. The view of M. Dieulafoy, that the disease is a consequence of constriction with closure of the appendix and the consequent retention of morbid material within it, did not find much favour. On the contrary, several speakers referred to the frequent existence of this condition without appendicitis, and at the same time mentioned cases in which they had found a perfectly permeable appendix to be the seat of inflammation. The general opinion of those who took part in the discussion was that appendicitis is usually the local expression of a more or less general enterocolitis. The theory of M. Reclus is worth quoting as a more detailed statement of these opinions. According to him the problem of causation is capable of a double solution—(1) as being related to the presence of an actual foreign body in the appendix, a condition of course hostile to spontaneous recovery, and (2) as explained by a “theory of stagnation.” This view regards the appendix and in a degree the cæcum as diverticula which readily allow the accumulation within them of organic fluids, these in turn becoming the seat of fermentative changes. Inflammation follows as a natural consequence. In this comprehensive and moderate statement we shall probably find the nearest approach to explanation of a malady the clinical aspect of which is, as a rule, sufficiently obscure.—*Lancet* Jan., 9, 1897.

### **The Marquis of Dufferin on the Functions of a Hospital.**

At a public meeting of the citizens of Belfast, held on Dec. 9th, to consider the desirability of erecting a new hospital as a fitting memorial of Her Majesty's long and eventful reign, the Marquis of Dufferin and Ava, in moving a resolution, spoke of the functions of a hospital in the following beautiful way: “Quite apart and independent of its agency in relieving individual suffering there are other functions of an equally important character which a hospital fulfils. A hospital is an entrenched castle from which medical science makes its onslaughts on disease and death. It is an arsenal where she forges her arms and invents new weapons; it is a laboratory from which there emanate those specifics which, it may be no exaggeration to say, are occasionally potent, not only to arrest, but absolutely to dominate and annihilate epidemics that were once considered so formidable.



Amongst many scientific bodies, and certainly in the domain of art, there are probably none which have made such progress during the last twenty years as medicine and surgery; but I think it will be admitted that those triumphs have not been effected through the experience gained in private practice, but are the results of those ample fields of observation placed at the disposal of our great physicians and surgeons in the magnificent hospitals that exist in other parts of the kingdom. The efficiency of a hospital must in great part depend on the size of its workshops and the extent of the field over which it can apply its remedies."—*Lancet*, Dec. 19th.

### Indicanuria as a Symptom of Latent Suppuration.

Indican in small quantities is a normal constituent of healthy urine but under certain circumstances the amount is so large as to merit the designation of indicanuria. This condition is usually dependent on decomposition of the intestinal contents consequent on constipation but it has recently been discovered in the urine in connection with the formation of pus, in such quantities as to authorize the belief that its presence may afford an important indication of latent suppuration. The first thing, of course, is to eliminate the intestinal tract as the source of the indicanuria, and this is done by the administration of naphthol, bismuth or other disinfectant. Should chemical analysis still reveal the persistence of the indicanuria, there is reason to suspect suppuration. The analysis is simple enough to admit of its application by every one. Equal quantities of urine and strong hydrochloric acid are shaken together in a test tube, and a little chloroform is added. In the presence of indican this becomes blue from the indigo liberated by the decomposition of the indican, and falls to the bottom of the tube. A fair idea can thus be readily obtained of the amount of indican present, but for diagnostic purposes it is necessary to resort to a quantitative analysis. This does not involve much additional trouble, advantage being taken of the bleaching powers of hypochloride of calcium, a standardized solution of this salt being dropped into the above mixture until complete decoloration results. Three or four drops of a 5 per cent. solution may suffice for this purpose, but in some cases as much as 50, or even 80, drops may be required.—*N. Y. Med. Times*, Dec. 1896.

### Music as a Therapeutic Resource.

The *New England Medical Gazette*, for Nov. 1896, has quoted the following from the *Popular News* :—

"A distinguished French scientist has attempted a new application of the theory of the transformation of mechanical movement into

psychological and psychical movement, with a view to employing music as a means of curing or alleviating diseases of body and mind. He attempts an ingenious scientific explanation of the general influence of music on the development and functional play of the moral and intellectual faculties, and on the physiological state of individuals. This general influence may be decomposed into specific influence, and the following results arrived at :—

“There is, first, a music which acts especially on the intelligence and on the motor nerves ; secondly, a music which acts specially on the nerves of sensibility and on the sentiments ; thirdly, a music which acts all at once on the motor nerves and on the sensory nerves, on the intelligence and on the sentiments, this in general being the action which most frequently occurs. This enthusiast goes to the extent even of believing that he has discovered between the effects of music and the nutrition of the nervous system such analogies that the laws which regulate the one and the other might be formulated in the same terms. Nay, further, we might establish a method in hygiene, in medicine and the moral sphere for profiting by these specific influences, above all in the treatment of mental nervous afflictions, making allowance of course for individual idiosyncrasies. In short, music is an agent at once psychical and therapeutical, capable of performing a considerable part in the phenomena of life, the employment of which is susceptible of application according to precise rules, based upon scientific principles.”

### **Dental Surgery and Blood Poisoning.**

An inquest was held on Dec. 11th at Harden before Mr. Barstow, district coroner, touching the death of Mary Ellen Steel, aged twenty-two years. On Nov. 4th deceased had seven stumps and two teeth extracted under gas by Mr. Wright Sunderland, dentist. Gangrenous inflammation set in. Dr. Angus of Bingley and Dr. Rabagliati of Bradford were consulted, but their efforts proved unavailing and deceased died from blood poisoning. At the inquest Mr. Sunderland and the relatives of the deceased were legally represented. On the day following the operation Mr. Steel, the father, noticed two small cuts, one on the left side of the gum and the other on the inside of the lip. We gather from the tenour of the examination of the witnesses that the wounds were caused by the instruments, and, further, that septic infection might have been caused by unclean instruments. In answer to the former Mr. Sunderland stated that it was impossible for the cut on the lip to have been made with for-

ceps, and to the latter that the instruments were bathed in perchloride of mercury before using them. Considering the extent of the operation it is not surprising that a wound might be inflicted on the gum, and, in fact, it might be expected as a necessary sequel. A small injury to the lip might very well be caused by the patient herself before she fully recovered from the anæsthetic. Dr. Angus was of opinion that infection did not take place on Nov. 4th; the date of the extraction, and that decomposing food in the mouth and the general condition of health were factors to be considered. With this we fully accord, and, indeed, it is surprising that septic and infective processes do not more frequently ensue on dental operations. Mr. Sunderland was properly exonerated from all blame.—*Lancet*, Dec. 19th, 1896.

### Dangerous Somnambulism.

A SENSATIONAL case of somnambulism is reported from Brussels, which happily ended without any disastrous results. The individual concerned was a pupil in one of the religious educational establishments of that city. In the middle of the night he was found walking about clad on in his sleeping garments, and being followed he was seen to have a large kitchen knife in his mouth, and was occupying himself in passing his hand over the throat of one of the sleeping pupils. He was at once awakened and so possibly prevented from doing some terrible damage. It is said that the lad is a son of a butcher, and he states he dreamed he entered into his father's business and that he went into the kitchen for a knife, with which he wanted to kill the pigs. Midnight somnambulists of this class are very dangerous and there seems every probability that some of the sleepers would have lost their lives had not the would-be butcher been found in time, for in these cases the special sense usually perceive things only in relation to their dream, and so, while being able to see the things connected with his object in view, he would be oblivious to the other surroundings and fail to realise his position. The disorders of sleep are probably in most cases due to differences of functional activity between different parts of the cerebrum; thus, while some are inactive others remain active and, indeed, in some cases become over-active. Talking during sleep is one of the simpler examples of activity of some parts of the nervous system while others are out of action; but walking and doing definite actions is far more complicated and may be dangerous both to the individual concerned and others who may chance to come in his way.—*Lancet*, Jan. 9, 1897.

### **Treatment of Night Sweats.**

Dr. E. M. Hale, of New Remedies' fame, has given his experience of the treatment of night sweats as follows in the *Hahnemannian Monthly* for January 1897. Our readers will probably think this savors more of the old than of the new school.

"I have read with great interest the article by Dr. Snader on the remedies for night sweats, and his high estimate of silica for that symptom.

While I have found silica very useful in cases where breaking down of lung tissue, and extensive suppuration elsewhere, I have not found it useful in cases due to malaria, exhaustion, la grippe, or loss of blood.

Dr. Snader does not mention several drugs which I have found often specific.

Camphoric acid, in doses of 5 to 10 grains, is the most generally useful remedy I have ever used. I only give one dose in the evening, rarely two. The sweats often cease at once under its use.

Hydrastis in doses of 5 to 20 drops of the tincture always succeeds when the sweats are the result of debility from exhausting diseases, as typhoid fever, la grippe, or extreme exhaustion from over-work. The dose is given several times during the day.

In some chronic cardiac diseases with very low arterial tension, no drug gives better results than digitalis in doses of 5 drops four times a day.

Cinicifuga in small doses often arrests the sweats of rheumatism, while our old drug china is almost specific when profuse sweats occur on going to sleep.

I cured one obstinate case of night sweats after influenza with pyrotoxin, 100th of a grain three times a day."

### **Taka-diastase in Dyspepsia.**

"In these days of progress it is gratifying to know that cases of amylicious indigestion which have so frequently baffled us can now be treated with a reasonable hope of success. For many years we have been looking for a diastase more potent than that found in the malt extracts, some of which have appeared to be of questionable value. It remained for Mr. Takamine, a Japanese chemist, to discover one of remarkable amylytic converting power. In this product, taka-diastase, we have what the profession has so long desired, and it is, therefore, not remarkable that many of the best men in the profession have investigated it, and the conclusion uniformly reached is that in cases of inability to digest the starches we have in this ferment a reliable method of treatment.

"Dr. George Tucker Harrison, of New York, says that we may prescribe this remedy in such cases with confidence that the relief will be decided. Dr. Harrison has used this new product in quite a large number of cases with uniformly good results. The first case he used it in was that of a lady who had been for a long time a chronic dyspeptic. She had been treated in various ways; by dieting, pepsin, pancreatic extracts, nux vomica, with ox gall, etc., but none of these methods of treatment gave her any appreciable relief, whereas the result from the use of taka-diastase was prompt and satisfactory. The flatulence, eructations, constipation and general debility disappeared.

"As taka-diastase is so energetic in its action the consensus of opinion seems to be that about two or three grains administered at meal-time is sufficient in ordinary cases."—*N. Y. Med. Times*, Dec. '96.

The efficacy of this new product has been vouched by several other practitioners. Of these Dr. J. Taylor remarked that in no case did he find taka-diastase fail in giving good results in amylaceous dyspepsia, and many of these results were obtained after a fair trial had been given to many diastasic and other preparations.

### **Child Life during the reign of Queen Victoria.**

After a very fitting manner the National Society for the Prevention of Cruelty to Children proposes to celebrate the sixtieth anniversary of the Queen's accession. The same appropriateness appears in the place of meeting chosen for this purpose—namely, the Albert Hall, London. The object of this celebration will be to make public the conditions affecting the life and work of children at the beginning of Her Majesty's reign and to trace the legislative processes acting up till the present time which have brought order, decency, and happiness out of what was once a chaos of neglect and cruelty. The factory, the mine, the sea, the field, the street, the circus, and the home have each and all been invaded by the same terror, and have alike learned the healing power of a national will instructed and refined by the compassion of kindly feeling. It is a glory of this reign that during its continuance a work so eminent in its humanity should have been so far completed. None should feel more deeply than our Gracious Sovereign and the not forgotten Prince her Consort in all good deeds, were he present with us, the joy of having added so much happiness to human life. In spite of considerable difficulty arising from social or economic opposition legislation in regard to this matter has proved an efficient corrective, even when applied in cases which required the

direct invasion of the home. We need hardly remind our readers that it is in cases of this latter sort that the National Society for the Prevention of Cruelty to Children has been most active. Its increasing popularity may be taken as indicative of the manner and the spirit in which its difficult functions have been discharged. We would also note the fact that every other project of a like nature has been either aided in part or entirely carried out by the State Executive, while this is maintained solely by the provident liberality of voluntary contributors. It is only right, therefore, that the coming celebration should bring to the society, as it is hoped that it will, a fresh mandate and vote of confidence in the form of a marked increase in that liberality. —*Lancet*, January 2, 1897.

### Dermatitis caused by the Roentgen Rays.

The *Boston Medical and Surgical Journal* contains several letters on the subject of dermatitis caused by the Roentgen rays. Dr. J. C. White mentions a case occurring in the Massachusetts General Hospital where a young lady was exposed to the rays for half an hour in one day and for forty-five minutes on the next day, the tube being placed about six inches in front of her sternum. On the following day the skin over this region was red; it subsequently became blistered, and three months afterwards there was an area of angry-looking granulations. Dr. E. A. Codman of Boston attributes these effects to the brush discharge from the vacuum tube or possibly to the ultra-violet rays. Professor Elihu Thomson, writing from Lynn, Massachusetts, describes his personal experience. Desiring to test the action of the rays on the skin, he held his left little finger close to a vacuum tube for half an hour, about one and a quarter inches from the platinum source of the rays. For about nine days very little effect was noticed, then the finger became hyper-sensitive to the touch, dark red, somewhat swollen, stiff, and soon afterwards it began to blister. The blistering started at the maximum point of action of the rays and spread in all directions, covering the area exposed. The letter giving these particulars was written by Professor Thomson on the day three weeks after experimenting with his finger, and the blister then covered the whole exposed portion of its back and sides. He estimated that the equivalent exposure at six inches distance would be about ten or twelve hours. He was not prepared to admit that the brush discharges had anything to do with causing the injury, because the potential was low, being obtained from a small 24-plate static machine and there were no perceptible sparks from the tube to the finger. Professor

Thomson mentions a case in which a young man engaged in testing Crookes's tubes at an electrical works had to discontinue the employment because his arms began to be affected, even through his clothing; he adds that two similar cases, but of far greater severity, occurred in Mr. Edison's laboratory.—*Lancet*, Jan. 16, 1897.

### Surgical Iodoformism.

Tussau (*Sem. Méd.*, November, 1896) describes a pathological state which he names "surgical iodoformism," as distinguished from iodism. It occurs in some patients who have had their wounds treated by iodoform, and usually runs the following course: After a longer or shorter period of complete toleration the wound, while secreting no pus, is surrounded by an inflammatory area with development at its circumference of inflammatory vesicles (iodoformic herpes). Petechiæ appear near the wound or at a distance in patches or groups. The wound stagnates and inflames, but does not heal. A generalised pruritus along the collateral nerves of the fingers follows (iodoformic zoster), later blebs and diffuse phlyctenulæ. Arcolar or pseudo-erysipelatous lymphangitis appears in the affected limb. If the use of iodoform is persisted in the lymphangitis progresses, the tongue becomes coated, and the patient is agitated and sleepless. A phlegmonous condition with general symptoms develops, and necrosis may threaten the patient with loss of limb or life. The symptoms in question seem to occur only in presence of a wound dressed with iodoform, and application of this substance to mucous membranes—for example, erosions of the cervix uteri or urethra—do not produce them. The surgical dressing of burns with iodoform is, however, very dangerous. The pathogeny of this group of symptoms is due to a localised or generalised reflex polynuro-dermatitis dependent on localised or generalised reflex polyneuritis. Iodoformism is not simply iodoformic herpes; this is only a first stage of its manifestation. A rational assumption is that iodoform exerts an action *sui generis* on the terminations of the nerves or the sensory corpuscles. Like all analgesics capable of suppressing or allaying pain at a given spot, iodoform determines more or less marked changes in the sensory corpuscles. These are probably the results of a mixed impression due to the emanations of iodine and to the irritating action of the crystals on the cells attacked; possibly also to a septic combination of iodine with the organic matter in the wound. The action of this substance may be at first local, but when absorbed it gives rise to constitutional or reflex action. The dermatitis that follows is easily understood.—*British Medical Journal*, Jan. 2, 1897.

### Infantile Paralysis.

In the last number of the *Neurologisches Centralblatt* an abstract of a very interesting paper by Professor Medin is given, the original having appeared in a Swedish paper. In an epidemic in Stockholm in 1887 the writer had collected 43 cases, and between 1888 and 1894 29 sporadic cases, and again in an epidemic in 1895. 21 cases. The immediate cause of the disease he believes to be a poison, but infection from one patient to another, although possible, is very rare. No particular conditions can be regarded as predisposing, although children under four years of age seem to be most affected, and both epidemics occurred in late summer. Most cases began with fever and sickness, pain and sensitiveness of the body, rarely convulsions, but occasionally sighing and crying out. Of 50 cases, the legs were affected in 45, the arm in 14, and in 4 cases the face or the external rectus or muscles supplied by the third nerve were affected. Six cases of acute polyneuritis were observed in the 1887 epidemic, but only two in that of 1895. In that disease the onset was sudden, with high temperature, and the pain was severe; sometimes there was cutaneous hyperæsthesia, and in one case this followed anæsthesia in the lower limbs. Polio-myelitis affecting the nuclei in the bulb and pons was found in several cases and a lesion in the cells in this region was in several cases demonstrated, practically identical with that of the anterior horn cells. Professor Medin has also seen polio-encephalitis occur in the same epidemic, indicating an apparent identity of the poisons of the two diseases. The prognosis is worst if the lumbar cord is affected, less if the cervical is the part affected, and is more favourable in polyneuritis than in polio-myelitis. The conditions found post mortem were the signs of general infection proceeding from bloodvessels and causing acute inflammation in the anterior horn, with consequent degeneration of the ganglion cells and of the nerve fibres. Professor Medin regards the disease as an independent peculiar one and separates from infantile paralysis all paralytic conditions which occur in association with other infective processes.—*Lancet*, Jan. 9, 1897.

### Psychical Research and the Roentgen and other X rays.

Mr. William Crookes, F.R.S., whose tubes have been a necessary medium in the discovery of the Roentgen rays, delivered his presidential address to the Society for Psychical Research on Jan. 29th. Although the society has been in existence for fifteen years and "has done some excellent work" and the science with which it deals is



"still in a purely nascent stage," yet he predicted that "psychical science as pursued by the society is the embryo of something which in time may dominate the whole world of thought." Over twenty years ago Mr. Crookes made some researches which attracted considerable attention among those investigating psychical problems, and he assured the society that he had still his old-standing interest in these just as when he had his first glimpse of some important laws of matter and energy which a large number of scientific men still do not recognise. Speaking of the newly-discovered Roentgen rays he said: "We are introduced to an order of vibrations of extremest minuteness as compared with the most minute waves with which we had hitherto been acquainted." "It has been demonstrated," he continued, "that these x rays as generated in the vacuum tube are not homogeneous, but consist of bundles of different wave-lengths analogous to what would be difference of colour could we see them as light, some passing easily through flesh but partially arrested by bone, while others pass with varying facility through bone but less easily through flesh." He considered it possible that other x rays exist in which vibrations are of a more extreme minuteness, as there is no reason to suppose that we have reached in the Roentgen rays the limit of frequency, and that some of those unknown rays may supply the key to much that is now obscure in psychical phenomena, as in telepathy—"the transmission of thought and images directly from one mind to another without the agency of the recognised organs of sense." By adopting such a hypothesis "no physical laws are violated, neither is it necessary to invoke what is commonly called the supernatural." Objections, he allowed, may be taken to this hypothesis, but in making objections to, or in answering these, it must be remembered that we cannot "express life in terms of heat or of motion" and other purely physical conditions. Doubtless "molecular movements strictly obey the law of the conservation of energy, but what is called *law* is simply an expression of the direction along which a form of energy acts, not the form of energy itself." He continued: "We may explain molecular and molar motions and discover all the physical laws of motion, but we shall be as far as ever from the solution of the vastly more important question as to what form of will and intellect is behind the motions of molecules, guiding and constraining them in definite directions along pre-determined paths."—*Lancet*, Feb. 6, 1897.

### **A Proving of Sabal Serrulata.**

The *Homœopathic Recorder* for December 1896 takes notice of some points in reference to Sabal serrulata, a proving of which drug by

Dr. Fréda M. Langton of Omaha, appeared in the September number of the *Materia Medica Journal*, this being the first proving made by a woman. The proving was begun with five drops of the tincture four times a day, which in a few days was increased to ten drops. We give the proving in the lady-prover's own words.

"There was no perceptible effect until the third day. I had a most unusual, full, confused sensation in the head, thinking was difficult, clear or sustained thought impossible. In reading I would find myself going over and over the same sentence or paragraph, not being able to think of what I saw, not grasping the meaning. The following day there was belching and acidity of the stomach; this was also unusual, having had perfect digestion and ability to eat anything eatable without discomfort. The confusion in the head continued, to which was added sharp, neuralgic pains, coming and going suddenly, like *Belladonna*, now here, now there, in the sides and top and back of the head, through the eyes and in the temples. I now increased the dose to ten drops; I was becoming very miserable, and it was with great difficulty that I attended to my work. My appetite became poor and capricious, and one peculiarity which made a great impression upon me was the constant desire for milk, an article of diet for which I had a great dislike in my natural state of health. At this time, the fifth day, there came on suddenly, while out making professional visits, the most intense pain through the abdomen. It was more like the cramps of colic than anything else, and I tried to think what I had taken as food that could have caused it, not at first attributing it to the remedy I was taking. It soon radiated in different directions, down into the legs, up toward the stomach, much like *Cimicifuga*, then to the ovaries, where it settled. I had never had a pain in my life in those much talked of and greatly abused organs. I had never before realized their exact location, but did so now, for the first time, since this pain came on. I concluded that it was from the medicine, and not from food or drink. I took one more dose that night and determined to continue the next day, but when I awoke with all these discomforts to which was added painful urination, my courage vanished and it then became science versus suffering. Supposing that these conditions would gradually subside after stopping the medicine, I endured them with what fortitude I could. The pains in the head were no longer sharp and stitching, but had subsided into that dull, listless, confused feeling impossible to describe and equally as difficult to bear. There were conditions of mind seemingly antagonistic, indifference and irritability. Indifference as to the wishes

and wants of others, and irritability, in place of sympathy, when those wishes or wants were expressed. I wished to be let alone, the mind seeming to be concentrated on self and personal suffering. I had a clear picture of those women who seem unable to get their minds off personalities, who think and brood continually upon their pains and aches, to the exclusion of all other matters; and, indeed, if they have as many as I had at this time there is no lack of cause for this self-attention. Sympathy did not make me worse, as in *Natrum mur.*—it made me angry. It was bad enough to suffer without having to answer questions and receive attentions. Like the poor animal who crawls away to die alone, I felt that I, too, would gladly do the same. The head and stomach symptoms gradually disappeared after a few days, but not so with the ovarian and bladder irritation. These remained for days and weeks. There was tenesmus equal to a true cystitis, with, at one or two evacuations, a few drops of blood. The pains in the ovaries were not acute after four or five days, but there remained a soreness which was constant, a dull, heavy ache, difficulty in walking or riding. This was much like *Bell.* again, and it was much more pronounced on the right than on the left side. Menstruation was increased and painful, especially on the right side. I tried different, seemingly well-indicated remedies as antidotes."

Many remedies were tried to relieve this distressing condition but with no effect. After three months' suffering, *Silicea* was at last hit upon. The prover adds—"I took *Silicea* two doses per day, with relief in two hours, and cure in three days, and have had no more cystic or ovarian trouble." "While taking the remedy there was no effect upon the mammary glands. This, I believe, would have developed by continued use. Much as I suffered from the inconvenience of the proving, I have never regretted it since finding the antidote. In the class of cases in which I have found it curative I have found just this group of head, stomach and ovarian symptoms. When I can get this picture I have never failed to find relief, and in many cases cure."

## CLINICAL RECORD.

## Indian.

A Case of Cholera cured by Psorinum 200.

By DR. BEPIN BEHARI MAITRA, M.B.

March 17th 1895. Hindu, male child, aged 3 years, attacked with cholera, since 10 a.m. yesterday. Had up to 2 p.m. some five stools and became collapsed. Since 2 p.m., had three doses of allopathic medicine every hour, which the child threw up each time it was given. From 2 p.m. till morning of to-day, had nine more stools. A neighbour treated the child for the night, giving him *Veratrum*, *Arsenic* and *Cina* : at 3 a.m. the child vomited a large round worm.

7 a.m. I saw the patient just now; the symptoms present were : Restlessness and turning from side to side ; pulse nearly imperceptible ; head hot ; deep sighing at times ; burning of the body and lying on bare floor ; hands and feet cold ; nose cold ; marks of ulceration all over the body ; the patient had suffered from eczema a short time before ; the eczematous sores were cured by external applications, leaving the present marks. *Calcarea Ars.* 30 every 4 hours.

8 p.m. Had 9 stools (23 in all up to now) since I saw him in the morning. Stools white, watery, with lumps of white mucus. Lower extremities from knees down cold as ice. Drowsiness, but responding, when called aloud : pulse hardly perceptible ; restlessness and turning from side to side nearly gone ; absence of deep sighing at times. Observing the symptoms to be those of hydrocephaloid I prescribed *Calc. Phos.* 6, every 2 hours.

From 11 p.m. the child began to get every 30 or 40 minutes painless and watery stools. Babu Turak Nath Palit, a neighbouring practitioner, who was watching the case with me, prescribed *Ricinus* at 1 a.m. Before this the patient had only two doses of *Calc. Phos.* 6.

18th March, 8 a.m. Stools stopped since 6 a.m. this morning ; extremities are not so cold as yesterday ; pulse perceptible ; child lies comatose and unconscious ; does not respond when called aloud. Now and then cries, yawns, contorts his body and then turns on his side ; absence of thirst. No urination, since the last 40 hours. To me it seemed to be a case of hydrocephaloid complicated with spinal irritation. *Apis.* 6 and *Muscarine* 6 alternately every 4 hours.

3 p.m. No stool, tympanites of the abdomen since noon ; is conscious now ; retching at times ; pulse improved ; no urination. Medicine stopped.

8 p.m. Since 5 p.m. had yellow, watery and very fetid stools and passed with the last stool about twelve ounces of yellowish and high colored urine. Gurgling of the abdomen now and then.

On inquiry I came to know, that even in good health, the child used while asleep at night to cry and to get up trying to come out of the bed ; eczematous eruptions used to appear on the body now and then : had voracious appetite. *Psorinum* 200 one dose.

19th March, 9 a.m. Since midnight up to 8 a.m. had three yellow watery stools without any fœtor ; each time a little urine was passed with the stools. This morning at 6-30 a.m. there was one stool, comparatively thicker, but the abdominal gurgling continues still ; with these symptoms in view Babu Tarak Nath Palit gave a dose of *Jatropha* 6. I saw the patient improving in every way ; pulse better ; countenance completely changed ; appetite better, desire to be taken by the mother in her lap. I stopped all medicine, and the patient had no more stool and was all right in a short time.

### Foreign.

#### *Two Gratiola Cases.*

By C. W. SONNENSCHMIDT, M.D.

1. Mrs. C., æt. 55, was attacked in June with diarrhœa ; passages yellow, watery, frothy, gushing out with force. Severe cutting pains in abdomen, rumbling of flatulence. Occasional nausea and vomiting.

Prescribed *Colocynthis* 6 every hour. Next day there was no improvement. Prescribed *Ipec.* 6, as the nausea and vomiting were more decided. Next day no improvement ; passages more frequent. Other symptoms were aggravated. Upon close inquiry I found that a cold feeling in the abdomen had existed from the beginning and still persisted.

I prescribed *Gratiola off.* 3 which cured the case very promptly.

2. A new-born infant, three weeks old, was attacked with diarrhœa and severe colic. There were two or three passages in quick succession, and then an interval of an hour or two. Passages green or yellow, watery, frothy ; nausea, vomiting. Severe pains before stools, relieved afterward for a short time ; passages expelled suddenly.

*Cham.*, *Coloc.*, *Verat. alb.* and other remedies, given during the next few days, failed to relieve the little patient. Then a careful study of the symptoms, especially the yellow, watery, frothy stools, gushing out with force, induced me to give *Gratiola off.* 3d, which promptly cured the case.

I should mention here that in this case there was a decided redness around the anus, and on one side an abrasion of half an inch in extent which caused some oozing of blood. This also improved rapidly under the influence of *Gratiola*.

I have no doubt that this case also had the cold feeling in the abdomen, but had to be treated by the objective symptoms alone.—  
*The Homœopathic Recorder*, Dec. 15, 1896.

# THERAPEUTICS OF CONSTIPATION, DIARRHŒA, DYSENTERY, AND CHOLERA.

## 142. LACHESIS.

### Constipation :

1. First dose caused C., second an evacuation.
2. St. delayed every day.
3. St. delayed from morning till evening ; after pressing there was only a scanty, unsatisfactory evacuation (1st day).
4. St. lies in the rectum, as far down as anus, without being passed, and without urging.
- 5. Scanty, pasty st., in morning, then omitting one day.
6. No st., first day ; delayed, occurring only after smoking, scanty and pasty (2nd day).
7. No st. for several days, with a very good appetite, on account of which abd. became hard and distended.
8. Urging to st. at times, without result, after three days' omission of st., followed at last by scanty soft. st. with great pressure, with pains as if the sphincter ani would be pressed asunder.
9. Intolerable odor in st. which as usual was somewhat hard ; odor like that of *Asafœtida*, but much worse, like putrefying snakes.
10. Neither st. nor urine for 7 days.
11. Constipation (with nodular sts.) alternating with soft pasty st. or D.

### Diarrhœa :

1. D. every evening for a week, preceded by transient pain in rectum, followed by throbbing as with a little hammer in anus. *Watery sts.*, with burning in anus, in the evening.
2. D. after the vomiting at night. Purging and vomiting while unconscious (bite).
3. D., with violent spasmodic cramp-like colic, so that she cannot straighten herself.
4. Natural evacuation, followed again by D.
5. Sudden D., with great urging, about midnight, thin pasty, excessively offensive, ammoniacal (1st day). Pasty D. in morning (2nd day).
6. Acids, even fruit, after Lachesis, easily cause D.
7. D.-like sts. five or six times daily ; increased itching in anus.
8. D.-like sts. with hæmorrhoidal troubles.
9. Sts. more frequent than usual in one inclined to constipation.
10. Frequent sts. during the heat in a nursing infant.
11. Two sts. in morning, followed by weakness, with continued fruitless desire for another st.
12. Copious evacuation from bowels. Moderately copious, strong smelling, otherwise natural st., followed by soreness of anus for a short time.
12. Soft sts. the whole time. Soft sts. of a *bright yellow color*.
13. Soft but consistent st. St. soft., pasty, never slimy, every forenoon.

14. Pasty, satisfactory st., followed by congestion of head and vertigo.
15. St. pasty, every day somewhat later, so that occurring in the morning, it after a while occurred in the evening, and again in the morning.
16. Thin st. in morning.
17. No st., only somewhat thin watery evacuation.
18. Nodular sts. ; this is a five days' alternation from a soft st., followed again by a soft st.
19. Scanty, smooth, *clay colored* st. St. *bright yellow*.
20. Involuntary st. and vomiting, after having fallen to the ground as if struck by lightning (bite).

### **Dysentery :**

1. Some mucus, so acrid that it is painfully discharged from the rectum, with voluntary pressure.
2. Blood is discharged while pressing after a very copious evacuation.

### **Aggravation :**

1. Evening ; night ; midnight ; morning. The whole time (day and night).
2. In the spring. 3. From acids, fruits.
4. After eating or drinking. 5. After sleep.
6. About menstrual time (before, during or after).
7. About the climacteric period. 8. In drunkards.

### **Amelioration :**

1. By smoking (constipation).

### **Before St. :**

1. Transient pain in rectum. 2. Vomiting.
3. Urging, pressing (constipation) ; often ineffectual.
4. Cutting colic. Gripping. Rumbling.

### **During St. :**

1. Pains as if sphincter ani would be pressed asunder (constipation). 2. Burning in anus. 3. Hæmorrhoidal troubles.
4. Violent, spasmodic colic. 5. Tenesmus. Great straining.
6. Aggravation of pains, so that it is necessary to cease all efforts.
7. Tearing pains in rectum from below upward and backward to the point of producing eructations.

### **After St. :**

1. Throbbing (beating in anus) as with little hammers.
2. Congestion of head and vertigo. 3. Protrusion of rectum.
4. Soreness of anus. Burning in anus. Continued biting and burping in anus.
5. Spasmodic pains in anus internally.
6. Weakness, and continued fruitless desire for another st.

### **Rectum and Anus :**

1. Protrusion of rectum, which is thick and proportionately swollen, without great pains ; after prolapsus is reduced with difficulty, anus spasmodically contracted.
2. Determination of blood to anus with hæmorrhoids.
3. Great itching of anus, especially in morning.

4. Burning discharge from anus.
5. Discharge of blood from anus.
6. Flatus at anus, though only short emissions by pressing.
7. Burning in anus.
8. Painful constriction of anus, especially following prolapsus.
9. Drawing in anus extending up into chest, even into head, with fever.
10. General painfulness of anus ; on coughing a pain as if it would be torn.
11. Throbbing in anus and small of back.
12. Beating in anus, as with little hammers.
13. Jerkings in anus in quick succession.
14. Clawing in anus, alternating with oppression of chest.
15. The pains in anus, and also the pressure, extend from without inward.

### General Symptoms :

1. Much talking and irritability during febrile condition, in evening. Peevishness, unusually contentious and obstinate, so that he quarrels with everything about him. Remarkable and persistent indifference and forgetfulness.
2. He sits up late at night at mental work, with great activity. Increased power of originality in all mental work, increased activity of fancy. Disinclined to his own proper work ; either indifferent or sad mood, with weariness and general laxity. Unusual confusion as to time. Makes more mistakes than usual in writing. Weakness of memory, words just spoken seemed obliterated. Loss of consciousness, with loss of strength, disappearance of pulse, and cold feet ; consciousness returned as soon as feet became warm.
3. Vertigo in morning on waking. Slight momentary vertigo, at times, on closing eyes. Dizzy pressive headache. Rush of blood to head with painful pressure under whole skull.
4. Headache over eyes extending to root of nose. Throbbing pain above right eye, with nausea, bad taste in mouth, heartburn.
5. Eyes watery with nasal catarrh. Dimness of vision ; much black flickering before eyes.
6. Whizzing as from insects in ears. Many symptoms end with nasal catarrh. Bleeding of nose ; thick dark-red blood.
7. Earthy gray color of face with abdominal troubles. Erysipelatous swelling of face.
8. Raging, jerking, tearing, dull sticking in roots of lower teeth, often extending through upper jaw to ear, periodic, always after waking from sleep, soon after eating, also from warm and cold drinks. Aphthous and denuded spots in mucus membrane of mouth preceded by burning pain and rawness. Mouth sore, parched and dry ; mucous membrane cracked and bleeding. Tongue swollen, and covered with blisters on each side. Taste, sweetish ; nauseous as from stale fat ; disgusting, salty of the powder of the 30th ; salty of mucus hawked up.



9. Hawking of mucus, with rawness in throat after nap in day time. Dryness in throat without thirst, at night on waking. Pain in left side of throat, extending to tongue, jaw, and into ear.
10. Difficulty of swallowing saliva, of liquids, not of solid food. Pain on empty swallowing, not swallowing food. Can endure nothing tight on throat.
11. Good appetite at one time, at another none at all. Hunger, cannot wait for food. Food relished without hunger, and hastily swallowed.
12. Unusual longing for oysters, which agree well.
13. Longing for neither food, wine nor tobacco, in one accustomed to wine and tobacco. All inclination to smoke has disappeared in a great smoker, though without any aversion to it.
14. Constant thirst with dry tongue and skin. Thirst for beer, with complete loss of appetite. Constant thirst, but drinking water causes nausea. Insatiable thirst with dry mouth and weakness. Increased desire for wine, which produces less effect than usual, in one accustomed to it.
15. Eructations and risings of food, after eating. Frequent, almost suffocative eructations, affording relief. Burning, sour eructations, with cramp in stomach. Meat fried in butter causes acid and bitter risings, in one whose stomach digests well.
16. Heart-burn, after smoking ; heart-burn with headache.
17. Nausea, morning ; forenoon, without appetite ; by proxysms, forenoon and afternoon ; at night on waking, with vomiting and diarrhœa ; wakes him from sleep ; worse from thinking of it ; with eructations ; with vomiting and thirst ; after dinner ; on swallowing ; after taking milk, drinking water ; after smoking ; with eructations ; with pain in pit of stomach ; with faintness ; very peculiar, as if in a single place in stom., very disagreeable, caused by looking at sugar of milk, even a single globule, and by thinking of it.
18. Qualmishness and aching in abd. and epig. with feeling as if he would faint, obliging him to loosen his clothes. Vomiting and retching, only mucus is evacuated, with cramp in stom. Vomiting and purging while unconscious (bite). Vomiting of food, of bile, of blood. Violent pressure in stom. after eating. Stitching extending from stom. to chest. Pressure as of a great load in stomach after eating, relieved by eructations and emission of flatus. Burning in stom. and hepatic regions.
19. Pains in hepatic and splenic regions. Agonizing cutting and tearing in right side of abd. with faintness. Abd. distended, hard, obliging her to loosen her clothes. Much flatus with loud noise. Offensive flatus. Feeling of emptiness of abd. Incarcerated flatulence. Gripping and intolerable colic. Feeling as if a hernia would protrude. Abd. hot.

- 20.\* Burning in urethra while urinating succeeds the night attack of vomiting and D. Burning urine with a hard st. Urging to urinate, but inability to do so, except at long intervals. Frequent and increased urging and micturition; urine dark and frothy. Dribbling micturition; a few minutes after again obliged to pass a small quantity. Old urinary troubles return while riding in a wagon after drinking wine. Urine dark yellow, staining the linen yellow and depositing a cloudy sediment. Red sediment in urine. Urine of a strong odor, with perspiration in axillæ.
- 21.\* Increased sexual desire; when controlled, it caused great inclination for mental labor. Semen possesses a penetrating odor.
22. Frequently useful in too scanty menstruation; also at the climacteric period.
23. Larynx and throat painful to touch, and on bending head backward. Hoarseness. Cough during sleep; worse after sleep. Constantly obliged to take a deep breath. Difficult respiration. Desperate fits of suffocation; she must sit up in bed. Oppression of the chest during sleep.
24. Feeling of constriction about the heart. Cramp-like pain in precordial region, causing palpitation with anxiety.
25. Wide awake before midnight, and talkative. Sleepy and weak after dinner. Constant dreaming at night, frequent waking, and again dozing and dreams. Amorous dreams.
26. Great physical and mental weakness, especially in morning. Falls unconscious to the ground, as if struck by lightning; has an involuntary stool and vomits (bile). Wine seems to have less effect upon him than usual. Great longing for open air. Obligated to wear clothes very loose, especially about stomach; even in bed is obliged to loosen and raise the nightdress, in order to avoid pressure; she dares not even lay the arm across the body on account of the pressure.
27. Itching over whole body. Sleep prevented by itching. All sorts of eruptions, dry and moist, vesicular, pustular, and furuncular (boils). Ulcers bleed. Burning in ulcers. Gangrene. Cracking of skin between toes. Old red ulcer scars reopened.
28. A feverish condition always after taking vinegar and salt things. Frequently very hot hands and feet; or icy cold hands and feet. Burning in palms and soles. Sweat early and profuse. Immoderate sweat of the feet. Sweat of back stains shirt sulphur yellow. Perspiration in axillæ strong smelling, or like garlic. Single paroxysms of shivering. Shivering during heat. (Shivering without coldness).

**Remarks:** The symptoms of LACHESIS point to it as likely to be useful in all the forms of bowel complaints,—constipation, diarrhœa, even cholera, and dysentery.

It may be used in pure constipation unaccompanied by other symptoms, that is, in constipation in otherwise healthy people who

preserve a good appetite notwithstanding that their bowels do not act for days; also in constipation which alternates with loose or diarrhœic stools, the stools during constipation being nodular like sheep-dung; in constipation when the rectum down to the anus is absolutely inactive, the stool filling it without the slightest urging, or with great pressure and pains as if the sphincter ani would be pressed or torn asunder; or in constipation when a stool can only be had after smoking. The stools of constipation are generally scanty and unsatisfactory, and may be either hard or soft, of an intolerably fœtid odor, which is described by the prover to be like that of *ASAFŒTIDA* or of putrefying snakes. Dr. C. C. Smith has reported a case (quoted in Hoynes's *Clinical Therapeutics*) of constipation of ten years' standing in a lady of bilious lymphatic temperament who was obliged to use daily injections of warm water. There was no pain, but a sensation of weight, fulness and pressure in the bowels, with considerable flatulency. *Nux.* and *Bry.* did but little good. *Lach.* 30 cured.

*LACHESIS* may be used in diarrhœa of all sorts of severity from soft and pasty to watery stools. It is very useful in diarrhœa brought on by acids and fruits, or which occurs in the spring. The diarrhœic stools are preceded by transient pains in rectum, by vomiting, by cutting colic, griping, and rumbling. They are accompanied by throbbing in anus as with little hammers, or burning in anus, or spasmodic colic, tenesmus and straining. They are followed by the throbbing in anus described above, congestion of blood to head and vertigo, prolapsus recti, soreness and burning or spasmodic pains in anus, weakness and continued fruitless desire for another stool. The stools may be altogether deficient in bile, being clay-colored, from sluggishness of the liver, or full of bile, being bright yellow, from over activity of the liver. As a general rule they are strong smelling.

There are cases of cholera in which the patients stagger and fall as if struck by lightning and pass stools and vomit unconsciously. Such cases, which almost invariably prove fatal, may be saved by *LACHESIS*, or by *COBRA* which has similar symptoms.

*LACHESIS* may be useful in very severe forms of dysentery when sloughing and even gangrene of the mucous and muscular coats have taken place; or even in milder cases when the stools are acrid and corrosive, so much so that they are painfully discharged with voluntary pressure. Dr. C. W. Boyce has reported, in the *Hahnemannian Monthly* for Dec. 1873, a case of dysentery in which the patient could not protrude the tongue which caught on the teeth, in which during a nap there were restlessness, dyspnœa, distress, and *stinking* stool. *LACH.* 200 cured in twenty-four hours. Dr. Spooner has reported in the same Journal of the same date, another case cured by *LACH.* (dilution not mentioned); in which the predominant symptom was "shivering without coldness."

### 143. LACTIC ACID.

#### **Diarrhœa :**

1. D. preceded by sharp pain across lower abd.
2. Diarrhœic st., hurrying to closet, without pain in rectum.
3. Loose bowels, with transient pain in abd. after st.
4. Soft st., with hard lumps, in evening.
5. Soft mushy st. at 9 A.M., again at 2 P.M. and 6 P.M. ; had hardly time to get to the closet.

#### **Before St. :**

1. Sharp pain across lower abd.

#### **After St. :**

1. Transient pain in abd.
2. Relief of aching in anus.
3. Protrusion of piles.

#### **Rectum and Anus :**

1. Protrusion of piles after st., very painful ; had to sit down two or three times ; could not walk.
2. Severe aching pain in anus, waking out of sleep ; relieved by st.
3. Tenesmus.

#### **General symptoms :**

1. Tongue coated thick white or yellow ; feels large.
2. Mouth and fauces dry ; mouth hot, tongue seems to fill it up. Mouth constantly full of water, worse after each eructation. Saliva salt, like brine.
3. Taste sour, metallic, acrid.
4. Swallowing solid food very difficult, almost impossible to force it down into œsophagus ; semi-solids more easily swallowed ; liquids quite easily.
5. Eructations of hot, acrid fluid, which burns from stom. to throat. Eructations of burning hot gas, causing a profuse secretion of tenacious mucus, which must be hawked up.
6. Constant nausea, aggravated by motion. Fulness and heat at pit of stom., with nausea and pain around umbilicus.
7. Pain across lower part of bowels on right side. Colic in lower part of abdomen, which nothing could relieve.
8. Urinates frequently day and night ; attempt to retain urine causes pain. Bladder feels sore as though over taxed or strained ; must keep bent forward to take off the pressure.
9. Felt sensitive to cold air, hoarse. Rheumatic pains in bones, worse on motion.

**Remarks :** LACTIC ACID cannot have a wide application in the treatment of bowel complaints. It may be useful only in those rare forms of diarrhœa in which the urgency to stool is so great that the patient has to hurry to the closet and has hardly time to do so, and the stools are soft, mushy with hard lumps, or are more loose and are preceded by sharp pains across the lower abdomen, and followed by relief of the severe aching pain in the anus when it exists. Some of the general symptoms of the drug, especially the gastric and urinary ones, are characteristic, and will materially help in its selection.

**Gleanings from Contemporary Literature.****VITALITY.**

BY LIONEL S. BEALE, M.B., F.R.C.P. Lond., F.R.S.,  
 Physician to King's College Hospital; joint Professor of Medicine  
 in King's College; and Government Medical  
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All who have considered the question of the probable nature of vitality, and the essential points by which the living has ever been distinguished from the non-living, must have been struck by the fact of the comparatively small proportion of the matter of the world capable of assuming the living state. The matter of our globe that never has lived and that never can live—never can form part of any form of living organism of which we have knowledge or experience—is enormous in amount; and when we think of the very small dimensions of our globe as compared with those of the non-living matter of the universe we can scarcely wonder at the exalted views which have been entertained by some scientific men concerning the enormous importance of matter, or at the conclusion that from matter and its properties life itself has been evolved.

Of the very small amount of matter which forms the bodies of all existing living organisms, how large a proportion has already entered into the composition of the countless living organisms by which the surface of the globe has been successively peopled in past ages. Indeed, the very same matter has lived and died over and over again, as generation has succeeded generation since the first beginning of life, and these same material atoms will be taken up, will live and die and be appropriated again and again by the living things which are to succeed. The circumstances under which a few eternal indestructible atoms are selected, and form the bodies of living organisms and become grouped and arranged so as to form chemical compounds, with special properties and tissues possessing wonderful endowments, have been studied with the greatest care by hundreds of skilled investigators, in the hope that the cause of particular chemical combinations and precise mode of production of special structures would be revealed. Many theories to account for the facts have been advanced, not a few of which have met with warm approval and have for a time been generally accepted as true, but, nevertheless, have soon been proved to be inadequate and have been replaced by speculations equally unsatisfactory. The doctrine which has been pressed with greatest confidence of late years, and which, therefore, has been most popular, assumes that every one of the multitudes of different living forms, past and present, is to be attributed to the properties of the material atoms of which its body is composed and the influence of certain external conditions—varying in different cases, and perhaps determining certain variations in the form, structure, and composition of the organisms to follow. But all the physical doctrines of life yet advanced repose on promises or prophecies or what has been called the tendency

of thought. Though not now resting upon facts the truth, it is said, will be proved some day ; but so far from any real advance having been made in this direction there is no probability of the fulfilment of any prophecy regarding any mechanical view of life. Such doctrines have been before the public in their revived form for forty years or more, but they still rest on authority only, while facts and reason are opposed to their acceptance.

With the permission of the Editors of *THE LANCET* I propose to bring under the notice of the profession in a few short papers some facts and arguments concerning the general phenomena common to all life, which, as it seems to me, ought to be fully considered before any hypothesis is accepted as an explanation of the phenomena of living things on the ground that they are one with the non-living. Such views have, indeed, exerted a wide influence for many years past, but though they have received very influential support they are still enveloped by the mists of conjectural science. In every part of the world are persons much interested in this question who are by no means satisfied with the views generally entertained and taught, and among them are some who have grown old in universal physico-chemical belief, but are just now beginning to discern and acknowledge some mystery in the changes characteristic of life. It is to be hoped that the acknowledgment of mystery will not lead to increasing obscurity.

I am particularly desirous of directing attention to the question of vitality just now because during the past year there have been indications of a change of opinion, and the prospect of obtaining a patient hearing is better than it has been for thirty or forty years. The spread of bacteriological investigation is familiarising an increasing number of observers with the use of high magnifying powers and methods of preparation of great importance in the higher branches of histological research ; and there are many members of the profession and advanced students who are eminently qualified to judge of the facts and arguments advanced concerning the important question of the nature of vitality and to form a correct estimate of the bearing of observed facts of nature in health and disease upon the question.

I shall have to consider the probable nature of those wonderful changes which take place when lifeless nutrient matter or some of its constituent particles come into contact with matter that already lives, the nature of the new powers communicated to it, and the manner in which these new powers are transferred. Although our knowledge concerning these matters is at present imperfect I hope to show that we are able to penetrate more deeply into the mystery than anyone studying our most advanced works on biology would be led to suppose was at this time possible. Unfortunately many authorities, whose doctrines have long influenced general opinion, continue to repeat in most confident language statements made long ago in favour of mechanical hypotheses without adducing fresh facts or advancing new arguments.

The question of the nature of the power or endowment which establishes a

sharp line of distinction between every form of living matter and every kind of matter in any other state or condition known to us, as well as all energies, forces, powers, or agencies whatever, is of absorbing interest. No physiological action, and no pathological change in nature, occurs which is not closely connected with, or directly or indirectly consequent upon, vital action of living matter. From the first movement of the matter of living germs to the last moment of living existence—from the first slight departure of living matter from its normal condition to the establishment of morbid changes which must be fatal, the influence of vital change is paramount and is distinct from every accompanying physical and chemical action yet discovered. So fundamental are the differences between vital and physical processes that it may be safely said there is no analogy between them. The difference is not one of degree or relation, but it is essential and absolute.

To attempt to determine the nature of mind, thought, or will without in the first place determining the nature of vitality seems useless. For in all cases vitality exists long before there is evidence of any process that can be properly called mental, and certainly vitality exists in a multitude of cases in which mind is absent at every period of life, and all living beings may live for a time and die without the manifestation of mental action. Mental operations may cease although vital actions continued to be performed, but of mental action without living matter we have no knowledge. In the absence of vitality mind cannot be.

The rate at which vital actions are performed is not uniform, but varies greatly in different cases under different conditions. The influence of all our remedial measures adopted in departures from the healthy state is due to changes brought about in processes dependent upon vital actions. We are able to facilitate or retard vital actions in some cases and to modify, check, or stop them—to reduce them when too active and to increase them when proceeding too slowly. Some of our most certain and valuable remedies act upon certain forms of living matter in the organism, while on other forms they exert no influence, and it is remarkable that of certain substances which have a very decided action upon certain forms of living matter in the human subject an overdose becomes a poison, stops vital action altogether; and yet may have no action upon the corresponding living matter of some of the lower animals, and even may be taken with impunity or perhaps constitute a harmless food. In some cases by encouraging increased action in one or more kinds of living matter in certain tissues or organs we may reduce to its normal degree exaggerated action tending to derange, damage, or destroy some more important tissue or organ near to or distant from the seat of our treatment. The recognition of this principle enables us to be of service in the treatment of many forms of inflammation and fever, and even in certain forms of morbid growths.

## II. EVIDENCES OF VITALITY.

Every living organism and every particle of living matter, however minute, affords evidence of the continual operation during its life of an

active power or agency—vitality; and all the tissues of living organisms have been formed from matter which previously to formation had been under the direct influence of this vital power. There is not a piece of solid bone or tooth or shell, whether taken from an organism recently alive or from a fossil which lived thousands or hundreds of years ago, that does not bear evidence of its origin from living matter as distinct as that afforded by a piece of hair or horn or nail or feather formed within a few months and removed but yesterday from a living organism. In short, the matter of these and other tissues was once in the living state, and if only the microscopical structure, or even a cast of it, should have escaped destruction by violence or by chemical disintegration, it can generally be identified as having formed part of a living organism. In some instances special characteristics are so marked that the structure or its impression can be recognised as having belonged to a particular species. Such results of vital action cannot easily be mistaken for products of mechanical or chemical action. The minute silicious remains of recent and fossil diatoms and the spicules of sponges are as clearly the result of past vital action as is a piece of fresh muscle or nerve.

The vital movements of the actual structureless living matter of an organism, the growth of living matter, its powers of analysis and synthesis, or of preparation for the last, and its derivation from pre-existing living matter, proclaim the existence of a power widely different from any mechanical, chemical, or other properties of non-living substances; and unless we admit the operation of vitality it will be found as impossible to account for the characteristics of the lowest, simplest organism, though it has been held to be nearly related to the inorganic as to explain the formation, structure and action of the most complex organ of man himself. The powers or properties and the action of the simplest bacterium afford evidence of the operation of vitality as convincing as that afforded by the living matter concerned in the highest mental operations of man. Although it has been declared again and again that living things are machines, not one of the many advocates of mechanical doctrines of life has been able to point to one machine that has *grown* or to a living organism that, like every machine, has been made in separate pieces, afterwards put together, and then set in motion, to say nothing of repairing itself while working without intermission.

All attempts to prove, and they have been many, that this vitality—this special endowment of all life—is a kind of force or mode of energy have failed. Life cannot be included among forces and forms of energy. Neither can it be shown to be correlated with any of these. Vitality is not a mere name applied to certain phenomena, the true nature of which is to be elucidated in the time to come; nor is it reasonable to regard vitality as one of a number of unsolved and possibly insoluble mysteries of the universe, and therefore not a subject for scientific investigation. Vitality is certainly capable of being more accurately defined, and though it may remain a mystery as regards its origin the study of the results of its action and the consequences and effects of its operation upon material particles will almost



certainly lead to more correct views concerning its nature. Vitality exhibits nothing in common with any so-called properties or activities in nature. Vitality stands absolutely alone, but in its action through nature, in the case of the very lowest as well as the highest organisms, there is much in common. It is always in very close relation with the matter it influences and it cannot act upon particles of matter even at a very slight distance from the seat of its activity, and it acts in a way in which no other force or power in nature is known to act upon matter. No vital action can be imitated, and the vitality of the lowest forms of life is as far removed from any known physical or chemical change as the highest and most complex form of vital action. Living and non-living actions belong to different categories and have nothing in common. The growth and multiplication of particles of living matter may be studied in the lowest organisms or in an elementary part or cell of any of the higher animals or man himself, and these vital forms of increase and multiplication are distinct from every kind of aggregation, coalescence, or process akin to crystallisation or deposition of which as yet we have knowledge or experience.

But if, as I have endeavoured to show, a general survey of various organisms in widely separated classes of living nature furnishes convincing evidence of the constant operation in all living things of a marvellous and special power not to be isolated, tested, analysed, or transformed, to which the vital phenomena of each form of living matter must be referred, the more minute examination of any of the constituent elementary parts or cells of any one organism brings us, as it were, very much nearer to the actual seat of operation of this wonderful agency, and we are even enabled to realise to some extent the character of the changes effected in the non-living pabulum when it comes under the influence of matter already living. We can distinguish the living matter from the surrounding material, be it cell-wall, tissue, or fluid, in which no vital changes occur. By the use of very high magnifying powers and successful illumination we may have under actual observation the minute particles of matter in which vital changes are actually proceeding. If, however, as seems very possible, we should be able to double or treble the highest magnifying powers now at our disposal, and if in many ways we may render still more perfect our methods of examination, we should still be so very far from discerning the actual particles of matter undergoing atomic rearrangement by the direct influence of vitality that we should not be able to add to our knowledge. Nor is there at present any hope of our being able to form an accurate idea of the precise manner in which the changes in position of the atoms is accomplished. Here, then, is the mystery, the solution of which must, it is to be feared, be put off till the time when new and important discoveries shall have been made concerning the analytical and synthetical operations proceeding in the living matter.

Let us look at the problem from another point of view--the minute structure and formation of any tissue or organ--and let us try whether we can suggest anything in the non-living world or anything that has been

designed and made to act by man with which the life-made structures will compare. Think also of the means of repairing, and even of renewing, some structures during life without any disturbance of the action of the greater part of the adjacent tissue. Where in non-life can we find anything parallel? Every particle of the tissue of a living organism was once in the state of living matter before it manifested any tissue characters whatever. The arrangement of its component elements, the properties it exhibits, its internal structure, are all due to the changes brought about when the matter of which it consists was in the living state. Is not this, again, evidence of the operation of a peculiar power which acts in every living organism in every department of nature? Think over the characteristics and form of various organisms and their adaptation to the conditions under which they are placed, and the fact of the transmission of the characteristic features, even in minute detail, through countless generations—in some cases without modification; in others with limited changes, while in some, many centuries may have passed without all the possible changes in the characters of a species being exhausted. And yet, notwithstanding striking departures and in many different directions from the primitive form, each divergent variety still retains the wonderful capacity of reverting to the original type in a few generations. Such facts are, it need scarcely be said, peculiar to the living world and absolutely due to the operation of vitality.

As regards certain vital phenomena which can be studied only by the use of very high magnifying powers, I shall endeavour to show how far our real knowledge justifies us in looking forward at this time, and I shall try to indicate precisely where the mysterious and so far inexplicable vital changes are effected. The mysteries connected with physiological and pathological phenomena I hope to reduce to a small number, to indicate and limit the seat of operation of the real mystery of life and discuss in what the mystery consists. Some vital phenomena can now be actually recognised and subjected to investigation—indeed, I feel that we are approaching very near to some knowledge of the actual particles of matter which undergo vital change, that is to a point beyond which it has not been possible to carry investigation—in fact, to the region of mystery common to every form of life that is, that has been, and that is to be. It is in this region that wonderful chemical changes far indeed removed from any that can be produced under laboratory conditions take place. By what means the changes in question are effected by vitality is at present unknown and may be unknowable. This part of my subject I shall venture to discuss when the change of the non-living nutrient matter which undoubtedly passes into the very substance of the living matter comes under consideration.

Living matter is also directly concerned in the production of the various secretions of glandular organs. The characteristic substances present in the secretion are not merely *separated* from the blood, but are actually *formed* by the so-called secreting cells. The living matter of each cell or elementary part takes up nutrient materials for the most part in solution and causes certain of these to live. The elements of the matter in the living state are

rearranged under the influence of the vital power and caused to take up new relations in respect to one another, so that when the living particles pass into the non-living state the substances peculiar to the secretion are formed. In some secreting elementary parts or cells it is even possible to see some of the less soluble substances that have been formed, in the matter of which the outer part of the cell consists. For example, embedded in the soft material of the liver elementary part, oil globules, biliary matters, and other substances may be detected on microscopical examination, while glycogen, urea, and some other substances may be shown to be present by chemical analysis. Not only so, but the quantity and the relative proportions of the respective constituents may be caused to vary by alterations in the food constituents. This is a matter of great interest to us, for when an organ is deranged by injudicious feeding we can in some cases, by a change in the diet for a sufficient period, and by the help of certain medicines, promote an increase or reduction in the amount of the constituents of which there may have been deficiency or excess, or we can encourage the removal of some substances from the organism and promote the retention of others. The different classes of substances formed in varying proportions such as proteids, fatty matters, salts, and carbohydrates, also vary according to the conditions under which the organism for the time lives. In some cases an organism may be caused to produce and to accumulate fat to an enormous extent, and it may more than double in weight within a short time, or, on the other hand, the animal may be kept lean and highly active—in fact, its muscular and nerve power may be increased and thus it may be made to perform work which would have been impossible if a large proportion of adipose tissue existed. But neither of these processes—the formation of fat or its removal—could be brought about in the absence of a special power operating in living things only, the increase of adipose tissue as well as its removal being effected by living matter. And we must bear in mind that the too rapid removal of the fat of adipose tissue by great changes in diet may endanger life.

Physiological and pathological phenomena include vital actions and depend upon vitality. They are not to be imitated or to be adequately explained by physics or chemistry in the present state of knowledge. We must in all cases admit the operation of a power communicated by pre-existing living matter to non-living matter of a certain composition and in a certain condition. Thus has the earth been peopled by successive generations of countless living forms of the most different kinds, all of which and at every period of existence have been dependent upon vitality, being also subject to pathological changes and various forms of disease.

### III.—VITAL CHANGES IN NERVE TEXTURES.

In development, structure, and action no tissues or organs of the body afford more convincing evidence of the constant presence and influence of vital power than the tissues and organs of the nervous system. Whether we study the peripheral arrangements by which impressions are

received from without, or the central organs to which these impressions are conducted, or the intervening fibres which carry the impulses from and towards centre and periphery, we find at varying intervals and of various sizes particles of living matter. In the most important part of the central nervous system of man the action of this living matter is intimately related to all mental operations. Consciousness, thought, will, and intellectual effort seem to be in fact vital manifestations which, regarded from the side of knowledge and experience, are inconceivable in the absence of vitality.

As regards the relation of vital endowments to the material particles, the changes in the position of which with respect to one another are continually occurring, it is probable that the material phenomena as far as they are at present discernible are in their essential nature of the same order as the vital movements of the structureless living matter of an amoeba, of a colourless blood corpuscle, of a mucus or pus-corpuscle and other kinds of living matter, and these vital movements are in their nature essentially different from every other kind of movement yet discovered.

Whether we trace the development of this most important and elaborate of all the textures of living beings in very simple organisms, or study the changes as they occur in man himself, we cannot but admire the remarkable arrangements by which the most distant organs and parts of the body are brought into intimate relation with the various receiving, originating, and regulating centres.

Not only does the arrangement as well as the development of the finer ramifications of nerves in peripheral and central organs afford evidence of the operation of the formative power of living matter, but the gradual formation and disposition of the most delicate nerve fibres and their special arrangement in different species have been shown to be due to the changes in particles of living matter which in young growing organisms are in great number and are always in structural connexion with the fibres. In the absence of such living particles the integrity of the nerve fibres would not be preserved, nor could their proper function be discharged. From the very first indications of its existence there is evidence, in various parts of the nervous system of the higher animals and man, of temporary arrangements which suffice for the comparatively simple nervous system required at an early period of life. These are gradually replaced by more complex and more lasting structures, some of which there is good reason to think undergo little further change through life.

The central and peripheral parts of every nervous system are in structural continuity from the first, but in the early period of development actual fibres cannot be discerned, though the course of the nerve currents can be followed by indications of more or less interrupted lines of granules made more distinct if the tissue is subjected to the action of very weak acetic acid for a long period of time. The anatomical elements of nerve centres and special nerve organs are for the most part so arranged as to occupy as little space as possible, while in their peripheral distribution

nerve networks are usually spread out over an extensive area. But in some situations are developed nerve organs of highly elaborate structure for the performance of special acts. It is through the agency of these that the external world is discovered and made evident to individual consciousness. The substance mainly concerned in this operation is the living matter, which throughout nature is devoid of structure, exhibits spontaneous movement, and consists of comparatively few elements.

Nerve organs, in construction, composition, formation, and mode of action, differ entirely from any known apparatus by which corresponding physical and chemical changes may be effected.

The nature-constructed apparatus and the hand-made apparatus are formed upon different principles, are composed of very different materials, and act in a totally different manner. Indeed, all natural structures and organs being produced by living matter absolutely differ from any things made by us in structure, mode of action, and in the kind as well in the excessively small amount of substances they appropriate and consume in proportion to the amount of work they perform. In fact, all natural structures approach if they do not actually reach perfection, and it need scarcely be said not one natural structure or organ has been made in pieces which were afterwards put together, nor is there one that may not be self-repaired to some extent. The material used for action and repair is selected by the living matter of the several tissues and organs from a solution common to all, and appropriated, applied to construction or to take the place of matter changed and converted into waste material during action. All natural tissues and organs are, as we say, evolved in the course of changes in colourless, structureless matter, consisting largely of water, by vital agencies, the exact nature of which we as yet know very little, and to investigate which we have not yet discovered the means.

We are assured that all natural processes are governed according to natural laws, but the terms of the laws have not been determined, and the phrase is repeated again and again without any definite meaning being assigned to it. If this view of natural law be accepted we must surely admit that the so-called "natural law" which governs the non-living part of the universe belongs to a category in which the "natural law" which governs vital phenomena cannot be included. There seems everywhere in the living world evidence of the paramount influence of a power altogether different from, and not governed by, any ordinary laws that have yet been discovered—a power invariably derived from pre-existing living matter and, as far as is yet known, originating in no other way—a power handed down from generation to generation without loss, but which may cease at any moment never again to be resuscitated or reproduced; and whenever this power ceases, as far as is yet known, it never undergoes conversion into any form or mode of motion and the results of its action are inimitable.—*The Laycet*, Feb. 22, April 11, June 13.

(To be continued.)

THE PRINCIPLES UNDERLYING THE SOLUTION OF QUESTIONS OF SCIENCE WITH SPECIAL REFERENCE TO HAHNEMANN'S LAW OF SIMILARS.

BY CONRAD WESSELHOEFT, M.D., of Boston, Mass.

THE "Committee on Materia Medica Conference" having proposed a list of questions, a careful consideration of the subject on my part resulted in the proposition of another question, which, it appeared to me, should take precedence of the others. In my reply of November.30, 1895, to the secretary of the committee, this question was stated by me in the following form :

*Has the "law of similars" ever been unequivocally demonstrated by deductions from general practice, and do we not require its more formal proof by inductive experimental research?*

In the course of correspondence with the committee through its secretary, Dr. W. A. Dewey, the consideration of this question was allotted to me. In proposing it, I had hoped to see another seize upon the opportunity with avidity, and to grapple more ably with the matter than its well-meaning but rash propounder. In this I was sadly mistaken, and finding myself in the lurch as usual, I reluctantly assume the task of getting the chestnuts out of the fire, and so will plunge at once into the middle of things.

In order to proceed most methodically, it will be best to discuss the second part of the question first: "Do we not require the more formal proof of 'the law of similars' by inductive experimental research?"

That I may approach this subject properly, it will be well to do so from all sides, beginning as far back as possible, and to try to discover as far as I can, what has been done toward its demonstration outside of clinical experience. In this way it will soon become evident that actual inductive experimental research has been very scanty, and that by far the greater proportion of the support of our guiding maxim was drawn from clinical observation, as found in the literature of the time of Hahnemann. This, for the sake of convenience, I will include in the discussion of the subject of experimental research, as far as Hahnemann was concerned. Another part shall be devoted to the consideration of the deductions from general practice by other observers during and after Hahnemann's time.

In following this inquiry, it might not be altogether useless to search deeply in literature for evidences of experiment in search of a law of cure, but it will be unnecessary for our purpose, for what we need has been long and well known, and it will be difficult, if not impossible, to find more and better evidence than is to be found in Hahnemann's first cinchona-bark test which is as follows :

"The following is to be considered : substances which excite a kind of fever (very strong coffee, pepper, arnica, Ignatius bean, arsenic) obliterate the type of intermittent fever. For the purpose of experiment, I took twice a day for several days  $\frac{1}{2}$ -ounce (four quentchen, equal to 1 drachm) of good Peruvian bark. My feet, finger tips, etc., first became cold ; I

became languid and sleepy; then my heart began to throb, my pulse became hard and rapid; an intolerable anxiousness, a trembling (but without rigor), a lassitude was felt through every limb; then throbbing in the head, redness of the cheeks, thirst—in short, all the symptoms of intermittent fever peculiar to me appeared successively, but without actual rigor. Briefly stated: also the peculiarly characteristic and common symptoms peculiar to me of intermittent fever, the dulness of senses, the kind of stiffness in all my joints, but particularly the numb, disagreeable sensation which seems to be seated in the periosteum covering all the bones of the entire body—all these appeared. The paroxysm always lasted two or three hours, and reappeared when I repeated the dose, but at no other time. I omitted it and was well.”\*

This, so far as known to me, is the only experiment Hahnemann ever made in order to establish his principle of cure, unless we consider his numerous other provings in the light of experimental tests. This view seems to me untenable, because Hahnemann considered the proof of the law furnished by his personal test of Peruvian bark as sufficient. So that his other provings were made chiefly for the purpose of discovering the “dynamic” effects of drugs, irrespective of the law which, in the opinion of Hahnemann, already rested on a firm basis.

Still, it is not difficult to perceive that the more extended proving of Peruvian bark, as well as of other medicines, gave evidence to Hahnemann that these cured the diseases to which they were similar; for the effects of many were previously known, and comparison was thus rendered possible.

In corroboration of this, I quote the words of Hahnemann: “I found, as in the case of the other medicines, and especially in that of Peruvian bark, that this, as surely as it is very curative in some cases of disease, so surely is it capable of producing in the healthy human body the gravest symptoms of disease of peculiar kind, often of great intensity, and of long duration.” (*Pure Mat. Med.*, Vol. III., p. 99; Germ. ed., 1825.)

It is a noteworthy circumstance that, instead of pursuing his inductive method further, for the purpose of still more confirming his newly-discovered law of cure, Hahnemann preferred to resort to the medical literature of his time for the discovery of other evidence, and it may seem strange to us that he chose this instead of the testimony of his own senses. It will be interesting and instructive briefly to examine some of this evidence, most of which he has recorded in the *Organon*.†

His quotations of clinical evidence may be divided into two classes: The first relating to the effect of *dissimilar diseases*, tending to prove that these may suspend, but do not cure each other (Sect. 38); also that

\* Hahnemann's translation of *Cullen's Mat. Med.*, Leipsic; Schweikert, 1790. Vol. II. Foot-note, p. 109.

† For a more detailed history of development of drug testing, see *Lectures on Homoeopathy*, by R. E. Dudgeon, M.D.; *History of Homoeopathy*, by Dr. Kleinert; also *History of Medicine*, by Dr. B. Hirschel.

dissimilar effects of medicine fail to cure (Sect. 70). His observations on this subject are so well known that extensive quotations are not demanded, yet his position regarding the matter may be seen in the following passages: "Two *dissimilar* diseases existing in the human body may be of equal intensity; or, in case the *older one* of the two proves to be of greater *intensity*, then the new disease is kept away and excluded from the body." This "pathological law" is sustained by numerous observers quoted in the next. Thus, he quotes from *Larry (Descriptions de l'Egypte, Tom. I.)*, that the Levantine plague does not visit localities where scurvy prevails; neither does it attack persons suffering from herpes. According to *Jenner*, vaccination proves abortive in persons suffering from rickets. *Von Hildebrand* says that patients in the ulcerative stage of consumption are not infected by fevers of a mild epidemic form.

In Sect. 38 Hahnemann demonstrates "that, *in case the new dissimilar disease is of greater intensity*, the first disease affecting the patient, being the weaker, will be postponed and suspended by the superadded intenser malady, until the latter has terminated its course, or has been cured." In support of this law, Hahnemann quotes numerous authors, of whom a few examples may suffice: "Thus, *Tulpius (Obs. Lib. I., 8)* informs us that two children, affected by a species of epilepsy, were at once free from that disease when they were attacked by *tinea capitis*; but as soon as the eruption disappeared from the head, the epilepsy returned in the same manner as before." It was observed by *Schoepf (Hufeland's Journal, XV., II.)* "that itch disappeared when scurvy attacked the patient, but came to light again after the scurvy was cured." In other instances, measles were seen to arrest the inflammation caused by the inoculation of smallpox virus; in other cases, the measles actually prevented the eruption of smallpox until the former had completed their course, when the variola reappeared, etc.

In various sections, *e.g.* in 50 and 52, etc., H. demonstrates that though diseases may suspend each other they are not available as therapeutic measures on account of their uncertainty and consequent danger. From this it follows that only well-tested medicines are to be used for curative purposes, according to the law of similars, which also finds its analogous processes in pathological and clinical reports. Thus in Section 43 H. says: "But the result is far different when two *similar* diseases meet in the organism; that is, when a stronger and similar disease is added to the one already present." In the two following sections (44 and 45) it is asserted that "two diseases, *similar* in character, cannot, like dissimilar diseases, *repel* or suspend each other; on the contrary, two diseases, though different in kind, but very similar in regard to their manifestation of suffering and symptoms, will always extinguish each other whenever they meet in the organism."

In support of this broad statement H. selects his examples from a limited class of diseases which, arising from a fixed miasm, are always uniform and known by a definite name. Prominent among them is variola, dreaded



on account of its violent symptoms, and known to have obliterated and cured numerous evils by means of the similitude of its symptoms; and it is a remarkable fact that inoculation with smallpox completely cured a protracted case of ophthalmia, as reported by Dezoteux (*Traité de l'Inoculation*, p. 189), and another case mentioned by Leroy (*Heilkunde fuer Muetter*, p. 384), which was also permanently cured.

Quoting from various writers, H. adduces an extensive list of cases cured by the intervention of smallpox. Thus, tinea capitis, deafness, swelling of the testicle, dysentery—all of which smallpox may produce and cure by virtue of its similitude. The same observations have been made in regard to cowpox, which, by virtue of the similitude of its secondary miasm, is capable of producing a certain kind of erythema, and cures similar and often troublesome cutaneous eruptions of children after the vaccination has properly taken effect. The same was observed in a case of swollen and half-paralyzed arm; also in those of intermittent fever in two persons as Hardedge, Jr., reports (*Kufeland's Journal*, XXIII.), thereby confirming the observation of J. Hunter (*On Venereal Disease*, p. 4), that two fevers (being similar) could not exist at one time in the body (*Organon*, Sect. 46).

In the examples above quoted, H. finds a strong support of his discovery of a law of cure, first by demonstrating that *dissimilar diseases* have not that power, and hence, continues H. (Sect. 47), "the preceding examples contain the most distinct and convincing argument in regard to the kind of artificial morbid potency (medicine) to be chosen by the physician in order to accomplish rapid and permanent cures, according to the process observed in the course of nature, *i. e., from a morbid potency which is similar in symptoms, and somewhat superior in strength*" (Sect. 48).

Such examples are not without interest, but of very little positive value unless supported by experimental tests of high order. The methods of such tests are now being developed at the hands of the ablest observers of our time, and it cannot escape even a superficial observer that there exists a remarkable analogy between the clinical results collected by H. and those obtained from the toxins of to-day.

But the momentous question arises as to whether H. really did all that was necessary to establish and confirm a positively defined law of cure, and whether we are justified in resting upon that which one observer, however distinguished, was able to accomplish a century ago. This question is not approached by the bacteriological studies of to-day. These progress in another direction, which may in the end assist in demonstrating the existence of the law of similars, but, if so, it will be incidental and aside from the purpose of bacteriological research.

It was the prime object and purpose of H. to discover facts in support of his law, for which, so far as my knowledge goes, he made only one experiment; and it is to be regretted that, notwithstanding the undeveloped methods and means of his time, a keen observer and generalizer like H. did not think it worth while to pursue the subject further by direct

experiment. This includes frequent repetition, comparison of numerous results, controlled by counter-tests, for these constitute the most important conditions for the elevation of any hypothesis to the value of a law.

Among H.'s subsequent provings there were many drugs, the effects of which in disease were known to be curative, such as aconite, belladonna, arsenic, etc. Inasmuch as their curative effects were demonstrated to be due to their similitude of effect, as disclosed by provings, these might also be considered as inductive experiments in support of the law of cure. But there is much that tends to show that he did not make those provings for that purpose, regarding the law sufficiently substantiated by his single china test, and his clinical quotations from the writers named above.

In the course of twenty years, after the promulgation of *similia similibus curentur*, it gave rise to a voluminous homœopathic literature. This included among its publications chiefly clinical reports of cured cases. All those published in Germany and those translated from foreign languages between 1822 and 1858 were published by Dr. Th. J. Rueckert in five volumes, including a supplementary volume by Dr F. G. Oehme, now of Roseburg, Oregon. This large clinical material has grown to immense proportions in the past thirty-seven years, but it has not been collected and arranged, as was done by that most industrious, learned and reliable writer. We point to these achievements with pride, and say to the world : Behold what homœopathy has done ; what greater proof of its success can be demanded ?

And yet a perfectly unbiased observer, eager to see only the actual causes and relations of things, with the ultimate purpose of placing homœopathy on a sound, unimpeachable basis—such an observer cannot fail to see that there is wanting a great and essential element, the absence of which invalidates to a large degree, if not wholly, our theory of clinical experience. This, to say it plainly, is only of partial and indirect value in the absence of any knowledge of the whole number of cases treated, or even of the number of the cases of a certain class.

In accordance with the commonest principles of statistics, both factors or classes, the negative as well as the positive, must be known if any valid and consistent proof of our method is to be furnished to the world. What would we think of a man arising in this assembly and stating that he had in thirty years of practice lost only five cases of pneumonia ? In this instance the inference would be that he saved 100 per cent. of his cases. But precisely the inverse inference would be justified if he had asserted to have saved only five cases of pneumonia. Just so with regard to our or any other method of practice which publishes cures almost exclusively. These are received with marked approbation ; but supposing the opposite were the case, and we heard only of failures, what then ? This course would be quite as good, or quite as bad as the first ; for while the first might meet with our applause, and the second with the silence of our disapproval, both instances, being equally unqualified, would be equally untrustworthy and

of doubtful value. Such statements by one or by many individuals, would undoubtedly be at once met by the question as to the whole number of cases treated; by withholding this knowledge we have no very firm ground to stand on.

It is true that we have some fragmentary statistics, to which I have referred elsewhere (*HAHNEMANNIAN MONTHLY*, October, 1885), but plead that we must have more, and I hope to show presently how to obtain them. Hence, as far as I have proceeded in this very condensed review of the subject, the question propounded in the beginning must be answered in the negative, to the effect that the law of similars has not been unequivocally demonstrated, and that we require more formal proof by inductive experimental research, to establish it more firmly than has been the case, hitherto.

The medical world at large has not accepted the law of similars. The negations of opponents are to be met, and the onus of furnishing evidence rests upon us. Without in the least underrating homœopathic practice with the means at our command, I would still urge that standing still without improving these means, is equivalent to going backward. Have we not stood still too long, and have we not too long been satisfied with the state of things as they have been for a century? With Hahnemann the healing art took a long step in advance a century ago; if it will take another such step in the next hundred years, the world will have to rest satisfied for still another century to come.

This review would be purposeless if left unsupported by a plan of work by which to arrive at some tangible results, even if negative and uncertain. For more than ten years I have from time to time published suggestions tending toward an understanding of the subject, in the hope of stimulating some workers placed beyond the necessity of spending their time in the ordinary drudgery of professional life, and so far not entirely without success. Inquiries concerning my plans of work I have answered\* in the following terms, setting forth our need of experimental investigation:

The human organism was selected by Hahnemann as the subject of experiment, but it unfortunately proves to be the most difficult and uncertain subject for that purpose. The ability to express sensations by language more or less eloquent is the very element leading to misconception and misconstruction. Instead of being the first, man should be the last subject of experiment in the final control-test, and be himself controlled. Effects obtained from animals under the influence of drugs, and their comparison with animals in health, would constitute fewer but more positive data in the form of symptoms; and these experiments should serve as control-tests for later tests made upon the human subject.

The subjects hitherto chosen by experimenters were taken from the canine-blooded animals, such as dogs, cats and guinea-pigs; but it is a matter of surprise that the omnivorous pig, being both prolific and obtain-

\* *HAHNEMANNIAN MONTHLY*, June, 1887. "Aphorisms on the Methods of Proving," etc.

able, is not usually mentioned as a subject of experiment. Next to this, there is many a reason for the supposition that the lower orders, such as molluscs, articulates and vertebrates, chiefly frogs, but also insects and fishes, should be of service, being both readily obtainable, easily kept, and observed in their natural element or conditions. Evidence is not wanting that these are quite susceptible of toxic effects, which are uniform and simple as compared with those obtained upon higher organisms; besides, they are more easily exposed to toxic influences of substances introduced into the elements inhabited, or food needed by such animals.

It is often said by opponents of animal experiments, that these would furnish no reliable data applicable to man, but this is merely a general supposition unsupported by facts and by the experience of expert experimenters.\*

As this short outline is not intended as a description of methods, I shall confine myself strictly to the statement of principles in answer to my original question. In order to approach this in the most direct manner, let me say that, while it is sufficiently well-known that drugs may produce morbid (pathological) conditions, that is, act as poisons, the amount of positive evidence proving the curative power of drugs is very small, barely deserving the name of a general deduction from clinical results, in which the whole number treated and the negative element of failure has never been duly considered.

*It is, therefore, necessary that the curative power of drugs should be as positively demonstrated as their power to produce morbid, i. e., pathological conditions, and first of all, it should be our object to determine experimentally whether it is possible to arrest or cure artificial disease produced by drugs (and other means) by the use of drugs as medicines. In other words, though we may know something concerning the production of artificial disease as practised in our provings we have yet much to learn concerning it, but our chief aim should be to learn how to cure it artificially; that is, how to cause an animal to become diseased by means of drugs, and then how to cure it again of this drug-disease.*

This line of inductive research is to be distinguished from that followed by bacteriologists. This deals with the (toxine) effects of bacteria, while the course\* of procedure required by our therapy deals exclusively with drugs, and, therefore, will require separate and special methods of experiment. Again, while the bacteriologist pursues an indirect course in preparing his cultures, and resorts to the indirect process of producing disease through the medium of a living organism, generating a poison, the experimenter with drugs derives his results directly from these, by producing, and ultimately curing, artificial drug-disease.

The bacteriologist has the advantage in so far as he has succeeded in producing and curing artificial disease indirectly; may we equal him in this respect by direct drug-experiments.

\* For information on this subject see *Text-Book of Experimental Toxicology*, by Dr. L. Hermann, Professor of Physiology at the University of Zurich.

In my article above quoted, a general outline has been given regarding the experimental course to be pursued ; but to attempt to make special rules to be followed would be quite useless, because a person even slightly acquainted with experimental studies in a new field will know of the difficulties sure to arise. They will be like those met by an explorer of a totally unknown region of the world. All he knows is the destination he hopes to reach, perhaps the North Pole, or the other side of Africa, but of the route he may have to take he knows nothing, nor where it will ultimately lead him. What he desires to find or to prove is one thing ; what he actually will find may be quite a different and wholly unexpected experience.

An explorer, whether of this Institute or of the world in general, will have to be one of genius, like a Newton, a Hahnemann, a Pasteur, a Koch ; his must be youthful vigor, independence of means and of time, while we, who have to toil wearily at our calling, must watch and wait and learn.

There is one more important side of the topic to be considered—namely, that relating to deductions from general practice. These, though first in the question as formulated, I must briefly dwell upon last. In order to decide any scientific question, either by direct experiment or by deduction from general observation, in either case, the first guiding principle is to collect numerous cases or instances, to classify them according to their negative or positive value ; and having done this, the second step would be to determine which class predominates in the determination of the question to be solved. This predominance should be decidedly convincing as to numbers, and predominant instances of success or failure should also bear very satisfactory internal evidence of having been fairly arrived at.

Applying these maxims to the determination of clinical results as due or not due to the use of medicines, the material to be drawn upon for a decision is very defective, if not wanting altogether. This state of things exists chiefly for the reason that there are not available records of diseases or of cases of sickness treated without medicine or without interference of some kind, intended to influence the course of the disease. The so-called expectant examples of Dietl, though voluminous, were not strictly expectant enough. On the other hand, the cases treated with medicine and other measures intended to influence the course of the disease, in and out of hospitals, is overwhelmingly great. This applies as well to our homœopathic schools, as I have previously shown, where the positive and desirable results have been and are still collected and published, while we remain in ignorance of the main elements of knowledge on the subject—namely, the whole number of cases treated and the whole number of negative results, including deaths or failure to cure.

As in the discussion of the subject of direct inductive research, I shall have time only to state the lines upon which the question of clinical testimony and evidence hinges. Stated in its most concise form it is this : *In order to prove that a case has been cured by medicine, it is first to be shown*

*conclusively that the case could have recovered or have been shortened without the use of medicine.* Upon the presence or absence of such knowledge rests the whole question of superiority or inferiority of schools of medical practice, and the question of superiority of therapeutic methods within schools; upon it depends the solution of the useless and puerile feud between allopathy and homœopathy, regular and irregular practice. Instead of endeavouring to decide a purely scientific question on its merits, both sides have preferred creeds, dogmas and ethical questions to quarrel about, and to say that homœopaths were the only ones to cling to a creed is one of the absurdities growing out of the helplessness of densest ignorance.

I reproach neither men, time nor circumstances in stating the case as I have done, but I feel and share the disappointment at the want of harmony among doctors in general. Let others quarrel and ostracise as they please, but let us at least take a step toward a better state of things by insisting on correct scientific data. Whether homœopathy is right or wrong it will stand or fall, not as a creed, but as a question of knowledge, as a scientific problem, and must be subjected to the crucial test of modern times. I assume that it is willing to abide by such tests. If other antagonistic schools refuse to submit to them the fault will be theirs.

When we had no hospitals, an essential part of the required tests could not be applied; but now that we have them in respectable numbers, these hospitals would miss one of the most important reasons for their existence if, for example, they failed to institute means for solving the questions before us. Therefore, let it be resolved or ordered by this Institute, for instance, that all or a certain class of acute cases, say pneumonia or typhoids, in these hospitals, should be observed for several years without any medicine whatever. Then, after having collected a fair number of hundreds of such cases let the same class and number be treated medically, or simply compared with those which had been treated with medicines hitherto. This course, if pursued in the hospitals of both schools would furnish us with the information we have never possessed. Its value would be inestimable. It would teach us the difference between actual expectant treatment under modern nursing and the medicinal treatment of the old school. It is impossible to venture an opinion as to how this would appear as compared with the observations made in hospitals of our school, but it is time that such results were obtained.

Some objections might arise against this course for fear of endangering the patient, and many might not have the courage to try it, so that it will soon be discovered that it requires more courage *not* to dose than to give medicine. Why? Because it has become a medical habit to give every patient a dose of some kind, be it large or infinitesimal, allopathic or homœopathic. But when calmly and dispassionately considered the wonder is that physicians have the courage to give medicine at all. By whom and how is it guaranteed that a certain dose of medicine, great or infinitesimal, will cure, or if not, that it is just the right one and safe one? As medical

science stands to-day, what we know is immeasurably overbalanced by what we do not know, and any method which is on the side of absolute safety is the best. We may not cure, but we were guilty of malpractice if the least harm resulted from prescribing medicine, while no harm can come from omitting it, not counting the few well-known exceptions. Such tests, and such only, would allay contention, by such tests the schools, or rather methods, of practice stand or fall. Otherwise partisanship, exclusion and intrigue will go on for ever.

It is to the hospitals that we must look for aid on the one hand and to the physiological laboratory on the other, to test by direct experiment the law of similars. Private practice is useless in this respect, unless poor, hard-worked doctors find time to collate and compare their results. This cannot be looked for, but henceforth the superintendents, medical staffs and internes of our hospitals should be instructed how to keep such records, and to collate them intelligently. But here, also, time and strength fail, for there are no idle persons in our hospitals, and it is earnestly to be hoped that special offices be created for this very desirable end.

Let me dwell on the subject but a little longer, for in this connection there are other secondary, though no less important, questions to be determined. We have schools within schools who have been fighting each other valiantly for a century with empty words. I mean in regard to the dose. This question can in time be determined by the same means, and incidentally, in the course of the same process, the main question: Does medicine cure, and if so, how? Let it go forth from this body that statistical evidence of a certain kind is wanted. Let the *American Institute of Homœopathy* indicate its wish and purpose by a resolution directed to all hospitals, not only of our school, but of all schools. Nothing will tend so well to put an end to antagonistic sects as the arbitrament of exact experiment, in order that our practice may rest on the knowledge of the physician and not on his belief.

Finally, to those who think they find in these arguments the seeds of heresy and a desire to belittle the work of homœopathy, and to those who, by following closely the footsteps of Hahnemann, think that their practice is perfect, and, finally, to those who point to my words as a proof of incapacity or want of success, I have only to say: Show me by proof, not by mere assertion, how much better you can do, or be silent. The same I have to say to the opponents of homœopathy. Until more work is done on both sides, the game is a drawn one between our school and its opponents, and, I may say, between contestants within our own walls.

The differences are reconcilable only in the way I have endeavored to indicate, at any rate never by assertions of superiority and partisan segregation.—*The Hahnemannian Monthly*, Aug. 1896.

# ARE THE EVIDENCES OF HOMŒOPATHY INSUFFICIENT?

By R. E. DUDGEON, M.D., London,—England.

My esteemed friend, Dr. Conrad Wesselhoeft, in the interesting lecture published in the August number of the *HAHNEMANNIAN MONTHLY*, thinks that Hahnemann was not justified in deducing the therapeutic rule with which his name is associated, from the evidence before him. He says that Hahnemann's experiment with cinchona bark, related in a note to his translation of Cullen's *Materia Medica*, in 1790, is the only experiment he ever made in order to establish his principle of cure, and that he considered the proof of the law furnished by this experiment sufficient. I think Dr. Wesselhoeft is mistaken, and I believe that a brief account, taken from his published writings, of the work of Hahnemann in connection with the discovery and development of the law of similars, will show that he only came to the conclusion that it was the true guiding principle for the selection of the remedy after long and laborious research and experiment.

In Hahnemann's letter to Hufeland he says: "I had conscientious scruples about treating unknown morbid states in my suffering fellow-creatures with these unknown medicines, which, being powerful substances, might, if they were not exactly suitable, easily change life into death." So, after his marriage, he gave up practice and devoted himself to chemistry and literature, earning a precarious livelihood by translating books. It was while translating Cullen's *Materia Medica* (in 1790) that, being dissatisfied with the author's explanation of the cure of ague by cinchona bark, the idea occurred to him to try the effects of this medicine on himself, he being at the time in perfect health, in order to see if he could thus obtain a more satisfactory reason for its curative action in ague than that offered by Cullen. He found that a considerable dose of the powder evoked a series of symptoms closely resembling a paroxysm of marsh-fever which he had experienced in Transylvania. It is asserted by some of his opponents that the symptoms Hahnemann observed from the medicine were not those of ague at all; but Hahnemann does not say they resembled an attack of ague in general, but that they were exactly like the form of the disease from which he himself had suffered, and we may be sure he would not have said so had it not been the case. Others assert, that he had still the Transylvania fever in his system, but in a dormant state, and that the large dose of bark merely roused the latent fever into activity. Against this it should be borne in mind, that he did not experience a real ague of any known kind by his dose of bark; for the essence of ague is its intermittent character, and every trial of the medicine, and he made several, was only followed by one attack of fever and no more. Moreover, upwards of ten years had elapsed since his departure from Transylvania, and we may credit him with being free from all malarious infection when he tried the bark upon himself in 1790; he was "in perfect health," as he says in the letter to Hufeland. There is now no room for doubting that cinchona and its alkaloid, quinine, can produce febrile attacks of an intermittent charac-



ter. Proof of this will be found in the 14th and 15th vols. of the *British Journal of Homoeopathy*, and elsewhere.

In his letter to Hufeland, Hahnemann gives a somewhat different version of his trial of china to what we read in the note to Cullen. After arriving by an exhaustive course of ratiocination to the conclusion that medicines could only cure diseases similar to those they can produce on the healthy, he adds: "If I am not completely deceived, such is really the case; otherwise, how was it that that violent tertian and that other quotidian fever, which I cured without after sufferings, four and six weeks ago, by means of a few drops of china tincture, not knowing how the cure was effected, presented almost precisely the array of symptoms which I observed on myself yesterday and to-day after gradually taking, by way of experiment, while in good health, four drachms of good cinchona bark?" The two versions he gives are not inconsistent with, but are corroborative of, one another.

But, to return to our subject, Hahnemann, finding that his dose of bark brought on a febrile attack resembling a paroxysm of the ague he had himself suffered from, seems to have thought that this might afford a clue to the principle governing the relation of medicines to disease. He was, of course, familiar with the two chief rules for the selection of the remedy, which had been proposed, discussed, and acted on by physicians ever since the days of Hippocrates, *contraria contrariis* and *similia similibus*. The first was by far the most popular, the last had only been occasionally put forward as a good therapeutic rule in some cases. Hahnemann's cinchona experiment seemed to point rather to the unpopular *similia similibus* than to its potent rival, *contraria contrariis*. But he did not rush at once into the arena of medical strife, crying, "Eureka! I have found the true principle for the selection of the remedy." He acted differently. He tells us what he did in his letter to Hufeland: "I now commenced to make a collection of the disagreeable symptoms experienced and casually mentioned in their books by observers, here and there, from medicines introduced in considerable quantity into the stomachs of healthy individuals. But as these were not numerous, I set myself diligently to work to test several medicines on the healthy body, and behold! the carefully observed symptoms they produced [recorded in the *Fraymenta*] corresponded wonderfully with the symptoms of the morbid states they could cure easily and without relapse."

Six years after commencing these researches among ancient medical records and provings of medicines on the healthy, he published his essay *On a New Principle in Hufeland's Journal*.

He did not then claim for homoeopathy that it was the general, still less that it was the sole, rule for the selection of the remedy. He states his case in the following words: "We should imitate nature, which sometimes cures a chronic disease by superadding another, and employ in the (especially chronic) disease we wish to cure, that medicine which is able to cause another very similar artificial disease, and the former will be cured: *similia similibus*."

He gave a number of instances of unconscious homœopathic cures by physicians of the old school in this way, but he does not mention the works from which they are taken. Several cases are from his own practice, but though he does not seem as yet to have set about a methodical proving of drugs, he has evidently ascertained some characteristic effects of a few powerful medicines in a desultory way.

After this he seems to have devoted himself more diligently to the proving of medicines, for in 1805 he published the results of his trials on himself of twenty-six medicines, together with the observations of medical authors on the effects of these medicines on more or less healthy subjects. This book is in Latin; its full title is: *Fragmenta de viribus medicamentorum positivis, sive in sano corpore humano observatis*. It is remarkable that in this work, though he wrote a long preface to it, he makes no allusion to the therapeutic rule *similia similibus*. But the trials he had made of drugs on himself, and his own extensive investigations among the records of medical writers, had apparently sufficed to convince him that the therapeutic rule of similars was applicable to the treatment of all diseases, acute and chronic. Accordingly, in the *Medicine of Experience*, published the same or the following year, he boldly claims for the law of similars the exclusive right to be considered the true rule for the selection of the remedy. His words are: "In order to be able to cure, we shall only require to offer to the existing abnormal irritation of the disease a suitable medicine; that is to say, another morbid force whose effect is very similar to that the disease displays." It is noteworthy that Hahnemann throughout this essay nowhere makes use of the formula *similia similibus*, though he had employed it in his earlier essay *On a New Principle*. Nor does he allude to the unconscious homœopathic cures recorded by previous writers, which constituted a not inconsiderable feature of his first essay. The only allusion he makes to his provings is a casual reference to the *Fragmenta* in a note.

The next five years must have been very busy ones. The *Organon* appeared in 1810, and it contains in the Introduction a large number of cases of the unconscious homœopathic employment of drugs by physicians of the traditional school. Hahnemann must likewise have labored hard in the proving of medicines, for in 1811 he published the first volume of the *Materia Medica Pura*, containing the pathogeneses of twelve medicines, all obtained by provings on himself (and probably on members of his family, though not so stated), for as yet he had no enthusiastic disciples to help him.

He had now no doubt about the truth of the therapeutic rule he had enunciated modestly and, as it were, tentatively, fifteen years before. I think no one who considers carefully the whole history of Hahnemann's cautious and deliberate action in his grand reform of the healing art will agree with Dr. Wesselhoeft in believing that "Hahnemann considered the proof of the law furnished by his personal test of Peruvian bark as sufficient."

To me it appears that Hahnemann was not at all satisfied of the sufficiency of this proof, and, as he tells us, he set himself diligently to test some medicines on the healthy, in order to ascertain if the artificial morbid symptoms they occasioned resembled the symptoms of the disease they were known to cure. And even after six years of such controlling experiments he did not think he was entitled to assert that the treatment by similarly acting medicines was suitable for all diseases, but only for some, chiefly chronic ones. Five years after his experiment with cinchona bark we find him treating a case of *crusta lactea* in a most unhomœopathic way, by the external application of a solution of *hepar sulphuris*. (v. *B. J. of H.* xlii., p. 209). It is curious to remark here that he attributes the disease to a minute living organism, which he thinks is killed by the sulphuretted hydrogen disengaged from the *hepar*. This is not the only occasion on which Hahnemann anticipated the modern doctrine of the microbic origin of disease, for he believed that cholera also was caused by minute invisible organisms, which he sought to kill by his strong doses of camphor internally, by mouth and rectum, and externally by fumigation and rubbing-in on the skin (*Lesser Writings*, p. 866.) Three years after the publication of his essay *On a New Principle*, viz., in 1799, the last part of his great work, the *Apothekerlexicon*, was published. This book shows no trace of the application of the law of similars in the therapeutic uses of the drugs treated of. In 1800 we find him translating a book of old-school prescriptions. Perhaps, like Romeo's apothecary, it was his poverty, not his will, that made him consent to do what must have been so distasteful to him. However, he had his revenge for the violence he thus did to his therapeutic convictions, for he wrote a sort of counterblast to the work in the shape of a preface and numerous notes pointing out the absurdity and irrationality of many of the composite prescriptions in the book (see *Lesser Writings*, p. 398).

I think I have made it clear that Hahnemann was not all at once convinced that the therapeutic rule, expressed in the formula *similia similibus curentur*, was the only true guide to the selection of the remedy, by his one solitary experiment with cinchona bark. With just as much plausibility might we assert that to Newton all at once was revealed the great law of nature that "every body or portion of matter attracts and is attracted directly as its quantity of matter, and inversely as the square of its distance from the attracting body," by the fall of the historical apple. The bark in the one case and the apple in the other set these great men thinking whether there was not some general law of nature at the back of the phenomenon they observed, and it was, in both cases, only slowly and by multiplied experiments and profound reflection that gravitation was revealed to the one, homœopathy to the other. Since Newton's time hundreds of observers have recorded thousands of phenomena which prove the correctness of Newton's formula. And the truth of Hahnemann's assertion that the true general therapeutic rule is expressed by the formula, *similia similibus curentur*, has been demonstrated by a

similar cloud of witnesses. So that I do not share Dr. Wesselhoeft's regret that the fundamental principle of homœopathy has not been sufficiently proved. On the contrary, I am fully persuaded that it was proved, as far as medical facts are capable of proof, by Hahnemann himself as early as 1805, the date of his *Medicine of Experience*, and shown to be extremely probable nine years previously in his ever-memorable essay *On a New Principle*, the centenary of which we celebrate this year.

Believing, as I do, that *similia similibus* has been placed on a foundation of inexpugnable truth by Hahnemann, and that the experience and observations of his thousands of disciples have constantly tended to fortify this position, I am not concerned to join Dr. Wesselhoeft in searching for fresh evidence of the truth of homœopathy. Nor do I consider the means he proposes the best adapted to effect his object.

In the early days of homœopathy statistics of the comparative mortality in allopathic and homœopathic hospitals were used with considerable effect in convincing the public of the superiority of Hahnemann's system. But on the profession generally they had little effect. Medical men know too well the difficulty of making such comparisons, and even where the conditions in the hospitals compared seem to be tolerably alike, the opponents of homœopathy always tried to vitiate the comparison by alleging that the partisans of the more successful method were ignoramuses who were unable to diagnose the diseases, or that they fraudulently represented slight as serious diseases. This was the line taken by Dr. Routh in his famous *Fallacies of Homœopathy*; and whilst his tables of comparative statistics in hospitals tell vastly in favor of homœopathy, he whittles away the trustworthiness of the homœopathic physicians in the manner just stated.

Dr. Wesselhoeft's proposal that our hospitals should receive and observe, without giving any medicine whatever, for several years, "all, or a certain class of acute cases, say pneumonia or typhoids," for the purpose of comparing the results with similar cases medically treated, is impracticable; for I believe it would be impossible to find a homœopathic physician who is not thoroughly convinced that homœopathic treatment, especially in pneumonia, has a decidedly favorable influence, and he could not contemplate calmly his patients dying of that disease without an effort on his part to save them by approved homœopathic medication. In Dr. Routh's book, just alluded to, the mortality from pneumonia in the homœopathic hospitals is only 5.7 per cent., whereas in allopathic hospitals it is 24 per cent. Even if we take Dietl's wonderfully small mortality of 7.5 per cent. under expectant or non-medicinal treatment, the superiority of homœopathy is, as Professor Henderson has shown, demonstrated in another way, to wit, by the much shorter duration of the cases treated homœopathically, viz., 11.66 days under homœopathy, 28 days under allopathy. In connection with this disease, there is a passage in Dr. Wesselhoeft's article which I confess I am unable to understand. He says: "What would we think of a man stating that he had, in 30 years of practice,

lost only 5 cases of pneumonia? The inference would be that he saved 100 per cent. of his cases." The percentage would depend entirely on how many cases he had treated during these 30 years. As stated, his mortality might be anything from 1 to 100 per cent., but if he lost 5 cases he could not possibly have saved 100 per cent. however many cases he might have treated.

Dr. Wesselhoeft advocates the old, bad way of experimenting on animals with drugs. Surely this has been done to satiety in the old school. And with what useful results? Look at the ponderous tomes of Lauder Brunton, Schroff, Binz and other champions of pharmacology. Can we obtain a poor ha'porth of useful information with regard to the true action of drugs on human beings from all that intolerable quantity of experiments on dogs, cats, rabbits, guinea pigs and frogs? I doubt if the "omnivorous pig," the mollusks, insects and fishes recommended by Dr. Wesselhoeft for such "proving" would furnish any better results.—*The Hahnemannian Monthly*, Dec. 1896.

## Acknowledgments.

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VOL. XVI.] **March & April 1897.** [NOS. 3 & 4.

CELEBRATION OF THE 142<sup>ND</sup> ANNIVERSARY  
OF HAHNEMANN'S BIRTH-DAY

The meeting of the Hahnemann Society of Calcutta, for the purpose of Commemorating the 142nd birth-day of Hahnemann, was held on Saturday the 10th April, at 7-30 P.M., at the Lecture Hall of the *Indian Association for the Cultivation of Science*, 210, Bow Bazar Street. The President of the Society, Dr. Mahendra Lal Sircar, being unable on account of illness to be present at the meeting, Dr. W. Younan, M.B., C.M. (Edin.), was unanimously elected to preside on the occasion.

Dr. Younan, on taking the chair, said :

GENTLEMEN,

It is with feelings of much regret that we have learnt of the continued ill-health of Dr. Mahendralal Sircar, president of this Society, and of his inability, in consequence, to preside at this anniversary meeting. Dr. Sircar's connection with the Hahnemann anniversary meetings has been of such long standing that his absence from our midst this evening, on account of ill-health, is a matter of deep regret to us all. We sincerely hope that he will soon be restored to health and strength, and return to the scene of his many and varied labours. We have

missed, during his absence these many months, the issues of the *Calcutta Journal of Medicine*, the organ of our little homœopathic society, of which Dr. Mahendralal Sircar is the able and respected Editor, and we hope that he may long be spared to us and to the cause of Homœopathy in India. I would suggest, as a matter of good taste and feeling, that a letter be addressed to Dr. Sircar, expressing the regret of this meeting at his unavoidable absence, and conveying to him our good wishes for his speedy recovery and return to us.

Dr. Amrita Lal Sircar, with the permission of the chair, read the following greeting which Dr. Sircar had sent to the gentlemen assembled :

BRETHREN,

I can scarcely express the regret I feel in not being able to greet you personally to the meeting which we consider it our sacred duty to hold annually in Calcutta in honor of the birthday of the man who alone has the just claim of being called the founder of Scientific Medicine, or more properly speaking, of the Science of Medicine.

Laid low by a disease which I could not get rid of in Calcutta I have come here for a change, but though an exile from home for exactly four months and ten days I have not been able to regain strength sufficient to enable me to bear the railway journey to take part in the meeting to offer you my sincere thanks for gracing it with your presence.

I regret my inability to be present at the meeting the more as I am prevented from laying before you the lessons scientific, moral, and spiritual I have learnt from my illness.

It would be impertinent in me to tell you that we can, if we chose, draw most important lessons from any and every event that occurs in Nature.

Disease, which comes home to us as an event in its most terribly realistic aspect, teaches lessons which remain or ought to remain indelibly engraved on the intellect and the heart.

We do not and cannot appreciate the blessings of health, so well expressed by our Rishis of old,—

अस्मिन् काम मोक्षानाम आरोग्यं मूलमुत्तमम्,

unless we know what the deviations from health are.

No respecter of person, Disease is the true and the greatest leveller of all conventional distinctions. The mighty and the low, the rich and the poor, the sovereign and the subject, the oppressing tyrant and the oppressed slave, the learned and the illiterate, indeed all men, are equally brought under its sway.

Hence the calling of the physician,—which brings him in contact with men of all station and rank, of all creed and color, of all grades of intelligence and morals, and enables him to issue his commands to all with the voice of authority,—is the most exalted on earth.

But the calling of the physician is at the same time the most sacred. It is godly. And no physician is worthy of this sacred and divine calling, unless he can combine the utmost firmness with the utmost gentleness. The best training, in my humble opinion, which he can receive for this object, is the training from disease personally suffered from. Nothing can teach a physician true sympathy with his patient as when he himself undergoes the sufferings of disease. It is then that he will feel the force of the best law of human conduct that can possibly be conceived—“Do unto others as ye would they should do unto you.”

As his experience grows with disease in his own person and disease in the person of others he will be able to fight with this necessary evil the best.

- Remembering that his “high and only mission is to restore the sick to health,” it will be his duty to study the laws of health, the conditions which regulate the vital activity of all living beings, of man in particular, the disturbing influences and agencies which cause deviations from the normal standard, and how these may be avoided, or taken advantage of to restore the balance that has been lost.

Under the category of these disturbing agencies come substances which are known as drugs, which when used in the light of their specific modes of actions, become remedial agents.

It was the great merit of our great Master not only to urge the necessity of investigating these specific modes of actions of drugs, but to actually investigate these modes of about a hundred drugs. And it was his unique merit to point out the ways in which these modes of action might be availed of in the treatment of disease, and to point out also the best among these ways.

The allopathic, the antipathic, and the homœopathic are the only possible and conceivable ways by which drugs can be made to combat disease, and homœopathic is vastly superior to the others, inasmuch as it enables the physician to meet disease at its various points of attack in the organism.

The homœopathic is thus the best method of treatment of disease by drugs, but its powers are limited by the paucity of drugs proved and the imperfections of the provings themselves. Each addition to the *materia medica* shows that still other additions have to be made, and this is corroborated by the sad experience of the most experienced physicians that the armoury already in their possession is not sufficient to combat all the ills flesh is heir to.

This fact necessitates the occasional resort to the other ways of treatment, the antipathic and the allopathic.

But there are other facts which necessitate the having recourse to these imperfect methods, and these are violent poisonings and mechanical injuries.

Our great master was not blind to these cases. You know that he recommended Camphor in cholera in quite large doses, and when criticized for doing so, he said "that the reason he gave Camphor in large doses is *that the effect* to be produced is an allopathic and not a homœopathic one. A palliative action must be at once produced or the patient will die before the homœopathic medicine has time to act."

You see, Gentlemen, how Hahnemann was alive to the solemn responsibility of our calling as physician, and his example ought to put us on our guard when we are tempted to make an orthodoxy of our faith even in Homœopathy.

Since his time great discoveries have been made in the collateral sciences, notably in physiology, and the biological sciences generally, which have thrown a flood of light on etiology or the causation of disease. These discoveries have not been made in vain. We ought not to ignore them. We ought to avail ourselves of their light. We ought to read homœopathy in that light, and then in the light of homœopathy, and then we shall find harmony instead of discord. We shall find that the modern method of serum therapeutics, which has come so much in vogue, is but a rude imitation of our method, and may under proper

modifications be disarmed of much of its disastrous results. We shall find where the allopathic or the antipathic method may find a preliminary or an auxiliary place, and where homœopathy would find its true place as the crowning of the edifice of therapeutics. As true physicians we ought not to neglect any method or means whereby life may be saved or prolonged.

Gentlemen, I must now take leave of you and wish the meeting the success it deserves, and you gentlemen health and happiness. I am glad to see that the chair will be taken by my esteemed friend and colleague, Dr. Younan, and that a paper will be read by an equally esteemed colleague and friend, Dr. Aksay Kumar Datta, on the Bubonic Plague and Homœopathy. I am confident my place will be more than worthily filled, and the paper, which is an opportune one at the present moment, will be both interesting and instructive.

Should it please Providence to spare my life another year and enable me to be present at the next Anniversary it will give me great pleasure to lay before you the lessons which, I have told you, it has been my privilege to learn during my present illness.

Adieu,

MAHENDRA LAL SIRCAR.

Dr. Younan then asked Dr. Aksay Kumar Datta to read his promised paper on the Bubonic Plague. After the reading of the paper which occupied about an hour and half, a vote of thanks to the lecturer was duly proposed and seconded. And then Dr. Younan addressed the meeting as follows :

Gentlemen,

I rise, in the name of all here present, to return thanks to our friend and colleague, Dr. Aksay Kumar Datta, for his able and elaborate paper on the bubonic plague. It was early last September that Calcutta was put into a state of alarm, on receipt of telegrams from Bombay, announcing that the Bubonic plague had broken out in that fair city. Day after day the telegrams became more and more alarming, and the death-rate of Bombay became phenomenally large. Our Western Presidency was panic-stricken, and a general exodus of the inhabitants went on. Meantime the Government and the Municipality adopted a variety of stringent measures against the spread of the disease.

and every available sanitary precaution was taken. But the plague spread in spite of it all and thousands were numbered among its victims. The medical profession in Bombay were never so active in the whole history of the city, and fearlessly did their most painful duty under exceptionally difficult circumstances. But it was sad to note how futile the medical treatment of bubonic plague proved to be. The mortality from the disease was very high and remained so. He had no opportunity of learning what methods of treatment the Bombay doctors adopted in the plague in the hospitals. Beyond the announcement that people were being largely "vaccinated" against the plague with the "viruses" of Haffkine and Yersin, the medical profession of this city had no chance of profiting by the experience of their Bombay brethren. The profession had entertained high hopes of the efficacy of the "virus" treatment, especially that of Dr. Yersin, whose experience of Hong-Kong plague was expected to have stood him in good stead. But, unfortunately, nothing but disappointment followed, and the bubonic plague remained master of the situation.

It is generally believed that the plague does not travel eastward, and that our presidency need have no fear of a visit from the disease. But I do not think such a security or immunity is to be depended upon, and it behoves us, as guardians of the public health, to gird our loins and make ready for the fight.

This evening we are gathered together to do honour to the memory of one whom we rightly consider the great medical reformer of the age—Samuel Hahnemann, whose birth-anniversary we celebrate to-day. When cholera appeared in Europe, Hahnemann was able, from his extensive knowledge of drug proving, to predict the remedies that were likely to be efficacious, long before he had seen a single case of this disease. Such prescience is only possible to a "Science of Therapeutics," such as Homœopathy claims to be, and its verification should be the rule and not the exception. Under the circumstances, ought we, the followers and disciples of the great master, to sit idle and helpless and impotent in the face of disease? Is it not our sacred duty to imitate his example, and to predict, at least for the present, in the same way as he did for cholera, the remedies that are likely to be useful against the bubonic plague?

We are familiar with the symptoms of the disease, as they have been observed for us by competent observers. We are familiar with drug provings, as they have been given to us by Hahnemann and his disciples. We have the law of cure, the law of similars, which is a law of nature and of Nature's God, and is therefore absolute, and therefore infallible. What more do we want as physicians and healers of the sick? The means are there, the tools are there, the weapons are there—we must be the workmen, the zealous workmen, the honest workmen above all, and that which is of the truth must per force prevail—*Magna est veritas et prevalebit.*

As homœopathic physicians, then, let us have our say in the treatment of so dreadful a disease as the bubonic plague. First of all, we have no wish to quarrel with our Allopathic brethren for their use of the “viruses” of Haffkine and Yersin, prophylactically and therapeutically.

The use of disease “viruses” is as old as Hahnemann himself, and was an outcome of his “law of similars.” Hahnemann called the method Isopathy and enjoined the necessity of high attenuation in its use. Isopathy has been largely adopted of recent years by the dominant school, without any recognition, however, of its original suggestion.

Be that as it may, Isopathy has to be safe-guarded by the attenuated methods of Homœopathy, otherwise “viruses” will literally remain “poisons”.

Besides, we have another objection to Isopathy as practised by our Allopathic friends. They would make of their virus injections regular “specifics,” applicable to all sorts and conditions of patients. But such “panaceas” are beautiful in theory and the opposite in practice. Homœopathy teaches, and rightly too, that *diseases* are not to be treated, but *diseased persons*, and the difference will be apparent on a moment's consideration. The homœopathically indicated remedies for plague patients will probably be as numerous as the patients themselves. At all events, we shall have to treat a number of well-worked clinical types, each type requiring its own individual and peculiar remedy or remedies. This has been the universal experience of homœopathy, and there can be no exception in the case of plague.

In one of our daily newspapers there lately appeared a very



interesting extract from an American Journal, describing how, during the great Plague of London, when death was in every house and the great city was laid desolate, the small community of shoemakers had particular immunity from the disease, owing not only to their trade in leather, but also to their burning hide in front of their houses as a disinfectant.

To us homœopaths the above is full of suggestion and interest; for, in the charcoal obtained from hide, Hahnemann had found a most precious medicine in glandular enlargements with or without fever. We know that plague is characterised by these glandular enlargements, accompanied by fever more or less malignant, and the testimony of the homœopathic school is to the effect that *Carbo animalis* is most beneficial in glandular disease. I stated before that therapeutics is concerned, *not* with the names of diseases, but with diseased persons themselves and their individual symptoms.

Early in my homœopathic experience I remember the case of a young lady who had suffered from a low continued fever, characterized by no other symptom than a marked enlargement of the glands of the left axilla. I gave her *Belladonna*, *Mercurius*, *Hepar Sulphuris*, without any benefit.

Turning up Bœninghausen's Therapeutic Pocket Book, which I had just procured, I found, under the rubric axilla, that *Carbo Animalis* was indicated in large capitals. Accordingly I administered a single dose of a few pellets of the 200th potency and the patient needed no more medicine. Since then I have frequently administered *Carbo Animalis* in similar conditions with success. While on the subject of the plague-virus injections of the old schools, I should have added that homœopaths have been first in the field in this instance also, inasmuch as they have long since prepared a nosode called *Buboin*, duly attenuated and potentized. Its efficacy we have yet to test, but I have no doubt that, like other nosodes similarly prepared, its efficacy will be seen only in cases to which its action is the homœopathic *similimum*. *Buboin* will therefore be another addition to our extensive *Materia Medica*!

We, who practise in India, have had frequent opportunity of observing how many of our fevers are attended with affection of the glandular system, lymphatic and otherwise, so much so

that I have heard it frequently remarked that such and such a case would not escape plague inspection.

I am quite prepared to allow that plague is a special disease, epidemic in nature, but I must also allow that its therapeutics will be nothing special, that the remedies we have been accustomed to administer in fevers with glandular and lymphatic affection will also be found beneficial in the treatment of plague, types of the disease calling respectively for *Arsenicum*, *Belladonna*, *Carbo Animalis*, *Hepar Sulphuris*, *Lachesis*, *Mercurius*, or any other remedy or remedies of the *Materia Medica*. It comes to this, therefore, that as homœopathic physicians our chief business is to master the *Materia Medica* of our school, that mine of therapeutic wealth most precious. All other knowledge is secondary for our purpose, though we cannot afford to neglect it altogether. If we are well armed with the weapons of our *Materia Medica*, even though they be infinitesimally small, we shall be in the position of that ancient servant of God, David of Scripture, who, armed with a sling and stone, did to death the mighty giant Goliath of the Philistines.

And if the Goliath of the Plague should invade our lands and homes and spread desolation around us, let us put our trust in Him and in His divine law of cure, and, like his servant David, go out to do battle with the enemy, with the assurance that our tiny therapeutic slings and stones will do him unto death.

## REPRINT OF AN OLD PAMPHLET IN VIGOROUS PROTEST AGAINST PERSECUTION OF HOMŒOPATHY.

[UNDER the title of "*The New Test Act: A Recent Conspiracy against the Medical Practitioners of Homœopathy and the Public, by the College of Physicians and the Faculty of Medicine, considered in a Letter to the Patrons of the University of Edinburgh,*" a pamphlet was published by one who called himself an *Alumnus*, in 1851, just after the passing, on the 9th May of that year, of those notorious resolutions by the Royal College of Physicians of Edinburgh, which condemned homœopathy and homœopathic practitioners *ex cathedra*.

The *British Journal of Homœopathy* for Oct. 1851, in noticing the pamphlet, remarked: "It is obviously written by a man addicted to the sifting of evidence, the weighing of analogies, and the deduction of plain inferences from plain matters of fact. There is no chopping of logic, but a downright hugging of the subject." And it went so far in its appreciation of its merits as to "earnestly recommend this admirable paper to the diligent perusal of all friends to Homœopathy, of all men of science, of all those who hold truth in reverential regard."

The pamphlet, notwithstanding the lapse of over forty-seven years, has not lost an iota of the burning interest it created at the time it was published. Its arguments have still their application, as the practitioners of homœopathy have not ceased to be victims of the same absurd but relentless persecution as they were fifty years ago, being still outcasts of the profession and debarred from all official posts, except in that land of freedom—the United States of America. Having got a sight of it by a happy accident, we have thought it desirable to give it entire in our Journal for the benefit of our Indian readers. As a contribution to homœopathic controversial literature by one who declares himself to be, and was evidently, not of the medical profession, but who was actuated by a pure desire to defend a persecuted truth, the pamphlet deserves a permanent place in the history of homœopathy.—*EDITOR, Calcutta Journal of Medicine.*]

# THE NEW TEST ACT,

&c. &c.

MY LORD PROVOST AND GENTLEMEN,

Few of you can have lived in such happy seclusion, as to have heard nothing of the medical disturbances which every now and then arise to agitate our quiet city. Justly or unjustly, the Medical Profession has the reputation of being wonderfully prolific of quarrels, and of indulging in a virulence of recrimination on such occasions, from which most others deem themselves debarred by considerations of propriety. I have thus prefaced my statement, only to assure you that the matters I have now to bring under your notice are quite of another sort; otherwise, not being of that profession, I should not have felt called upon to meddle in the business. What I have now to direct your attention to appears to me, and I think will appear to many, at least, if not all, of you, to be of great public importance to the community and to the University; and I feel so sure of an open ear as to everything which touches the welfare of an institution so especially bound up with many of our dearest recollections, that I shall use no entreaties or arguments in order to obtain from you a patient hearing.

- It is now matter of notoriety that the Royal College of Physicians of Edinburgh has pledged itself, and each of its assenting members, to have no dealings with certain of its own Fellows, or with any other physicians, although also Graduates of our University, who agree in observing a doctrine and practice in medicine generally known as the Homœopathic. It is true that these resolutions (which I shall quote in an Appendix) state no reasons for thus putting the Medical Practitioners of Homœopathy beyond the pale; and if, as I trust, I shall satisfy you that the principle, or rather the arbitrary rule of communion inculcated by these resolutions is a matter of public concern, we shall have the more inte-

rest in inquiring, what the grounds can be upon which the College of Physicians suppose so unusual a course of conduct to be meritorious or defensible. It is the more necessary to call your attention to these Resolutions, as I regard them to be essentially connected with other proceedings, more directly affecting the University, to which I shall presently advert.

Few words will be required to show, that if one party, or sect, or persuasion of the Medical Profession resolve that they will not meet in consultation with any member of a different party, or sect, or persuasion, the public are injured; and, as a question of principle, it cannot be decided by counting the respective numbers. The proscribed minority may in this case be small; but let us once admit the principle, and the effects may be disastrous. We may have the whole body cut up into sects; and instead of, as heretofore, having free choice of the whole Medical Practitioners in Edinburgh, in case of desiring assistance in consultation with our usual medical attendant, we shall have to consider to what sect he belongs, and how many members of it there are. In short, a supplementary list will have to be published yearly in the Almanack and Directory for our guidance, showing the actual state of parties. Suppose that Dr. Henderson is my family attendant. He is considered an excellent stethoscopist; he examines my chest, and, as the result of such examinations and his knowledge of the history of my health, comes to the conclusion that I am in a consumption, and orders me, with directions as to treatment and medicine, to Madeira. Well, it is a long way and a serious change of life; and I should like to have the opinion of Dr. Alison or Dr. Simpson before leaving home. I tell Dr. Henderson that I wish a consultation with one of them on the subject. "Oh!" he replies, "that is perfectly impossible; neither of them can meet with me without loss of character. So the College of Physicians has determined." "Why on earth cannot they meet with you?" I ask. "Are you not a Graduate, and one of the Medical Professors, of the University, a Member of the College, and of reputable private character?" "I believe I am all these," he answers me; "but the reason is, that I am a Homœopathist." "And pray, Dr. H., what may that long terrible word mean? Is it the Greek for a liar, or a quack, or for what, that it operates as an impassable bar to the benevolence and professional zeal of

other members of the College?" "Oh no," he answers, "it is nothing at all so detestable." "What is it, then, to be a Homœopathist?" "Well, I will tell you" shortly what it means. It imports a belief in the prevalence of a general law by which to be guided in the selection of remedies; *similia similibus curantur*, expressed technically; or, in plain English, that the substance which produces in the healthy a resemblance of the disease will cure it in the sick." "And is this law universally repudiated by the other Members of the College?" "By no means," he tells me. "In fact, I remember that, on the occasion of the rejection (after a vote by ballot) of Dr Black's petition for admission as a member, the President said, that the Homœopathists had no right to the exclusive use of the title, for that on occasions they all practised Homœopathically. Indeed, the truth is, that all the specifics in common use are given in accordance with the Homœopathic law."

I ask again—"Is that *all* that is implied in being a Homœopathist?" "Strictly speaking, *all*," he answers. "Every physician practising according to that law is a Homœopathist; but there is a farther difference in practice arising out of this law: that we always give medicines in much smaller quantities than they are otherwise usually given." "Nothing more?" Nothing more, I believe; for I don't suppose that the practice of never giving but one medicine at a time, and of always testing the medicines upon healthy persons before giving them to the sick, is deemed seriously objectionable, however little practised by the other Members of the College." "Then, the practical result to me is, that, because you differ from most of the other Members of your College on the principle of selection, and on the right quantities of medicine (upon neither of which, as I understand, the others are at all agreed among themselves), I am deprived of the benefit of having the advice of any of them?" "Precisely so," he answers.

I shall waste no more words in establishing my position, that these proceedings of the College of Physicians are of general concern; and it is not inadvertently, but considerately, that I have described this transaction as indicating a conspiracy of the College against the public. It appears to me a violation of all propriety, that a body so constituted should pass such resolutions; and,

as they have done so, it is well the public should know it. If the Medical Practitioners of Homœopathy are thus insulted by the College, no less are its lay adherents, among whom are many of the most enlightened and influential of our citizens. Nor is it to be supposed that these notable resolutions will affect these only who are now adherents of the proscribed system. On the contrary, if, as will presently appear, that system is rapidly becoming extended by daily conquests, it would be rash to say of those who now regard it with indifference or aversion, that they may not soon be included among its adherents. Obviously, it is personally unsafe for heathens to be consenters to the burning of christians, until they can be assured that they will not themselves become disciples of the new advancing Faith. Besides, persecution in all forms, as the history of the nations has abundantly taught us, is a game but too easily learned; and the weapons which we have forged for others may ere long pierce ourselves.

Before asking your attention more particularly to the terms of these resolutions, and to the proceedings of the Medical Faculty of the University, I shall take leave to say a few words on the history of the introduction among us of the Homœopathic System, and of its progress hitherto—a progress so remarkable, that, where it does not lead to serious, calm inquiry, it is likely enough to lead to intense, ignorant hostility on the part of the great body of practitioners; who will regard it as an intolerable, monstrous innovation, to be put down at all hazards; if possible, by force; otherwise, by calumny.

That the language I have now used is not too strong, will be readily confessed by all who are familiar with the history of medicine. It is notorious, that one after another its great reformers have suffered martyrdom at the hands of their fellow-practitioners; and to the law that each remarkable improvement in medical practice has entailed upon its author general obloquy and loss of practice there are probably very few exceptions. On such a subject there is no need to refer to authorities; but, in case of any doubting what I say, I shall quote a sentence or two from a recent paper by Dr Simpson, the present distinguished President of the College of Physicians.\* I quote the following passage the rather

\* *Etherization in Surgery. Part I. Monthly Journal of Medical Science, September, 1847. Pp. 146—152.*

that it seems to me expressly applicable to the large-minded, sagacious Hahnemann—undoubtedly one of the most accomplished men of his day in science and philosophy, whatever judgment may be formed of the merits of his therapeutic laws. “From time to time,” writes Dr Simpson, “in the march of medicine and other allied sciences, some earnest and expanded mind conceives and elaborates a great and novel thought, destined, in its practical application, to ameliorate the condition, and promote the happiness, of mankind. But, hitherto, almost as often as the human intellect has been thus permitted to obtain a new light, or strike out a new discovery, human prejudices and passions have instantly sprung up to deny its truth, or doubt its utility; and thus its first advances are never welcomed as the approach of a friend to humanity and science, but contested and battled as if it were the attack of an enemy. Practical medicine, in its past career, is full of instances illustrative of this remark.” Of the truth of these remarks, it seems to me there can be no reasonable doubt; and I am glad to find my views so distinctly corroborated by the very learned and talented President of the College. *Vaccination* is the instance he makes choice of in the paper from which I quote (and to which I refer those who may be interested in the inquiry); in reference to which, perhaps the greatest of commonly received modern improvements in medical practice, “by which hundreds of thousands of human lives throughout Europe are estimated to have been saved,” the author of the article adduces more than abundant evidence that it formed no exception to the general law of resistance and persecution—the intensity of which may surprise some of our readers. Indeed, with all the violence of denunciation directed against the Homœopathists by their fellow-graduates, we believe the following, directed against Dr Jenner’s great discovery, has hardly been exceeded. “The vaccine,” exclaimed one enemy of cow-pox inoculation, “was the damndest thing ever proposed; he wished the inventors were all hanged, and he would give his vote for its being done.”\* Again, Dr Simpson writes;—“The history of cow-pox is certainly calculated to teach us this one lesson, that, in relation to the truth of any novel doctrine or practice, such as vaccination or etherization, ad-

\* Moore’s Reply to the Anti-Vaccinists, 1806, p. 14. Quoted in the paper referred to, p. 150.



verse opinions and pre-judgments are—however strongly entertained, or however strongly expressed—not in themselves adequate, as some at the present time would seem to believe, to decide the whole matter in dispute, either in one direction or another.” How far the learned writer, who found it necessary to make such remarks by way of obviating opposition to his own greatly beneficial innovation, the use of chloroform, is prepared to apply them to Hahnemann’s, I cannot tell. He was in the chair, as President of the College, when the famous resolutions were unanimously passed, and I am not aware that he has in any way disclaimed the part in this adoption which will naturally be allotted to him. I should be sorry to think that he has so imperfectly learned the lesson, which he was so lately enforcing upon others, when he wrote the sentence last quoted. Whatever he may do, I have no difficulty in making such an application of his words; and I am confident that I carry with me the judgment of unprejudiced and wise men when I say, that to pass such a sentence against Homœopathy and its practitioners, without inquiry, or reasons alleged, on the part of the College, is a course of conduct to be justly reprobated; that their decision on the matter is one of those “pre-judgments which are not adequate to decide the matter in dispute,” and which are in truth entitled to very little respect. If it shall appear, then, that the great therapeutic law, proposed by Hahnemann, and alleged to be proved by induction, has met with great opposition from the general body of the profession, and has been denounced by colleges, even with extreme violence of language; such facts will to the cautious inquirer afford no sort of presumption against its truth and final establishment. If it be true, of course it will, perhaps after long waiting, but certainly in the end, prevail; even if it be in whole or in part untrue, these are not the legitimate or effectual means of proving its falsity. If the system have no foundation in nature, careful, patient, dispassionate, investigation is the right way of showing it to be so; and they will be only the foolish or timid, whose judgments on the subject will be much influenced by the *impromptu* denunciations of Colleges. Like everything else, it will stand or fall according to its true merits, which only those can profitably pronounce upon who have fairly investigated them; and there may be apparent such a measure of animosity as will

disqualify for such an investigation those who would be otherwise deemed well prepared for it. I have now, according to my promise, to say something of the introduction among us, and of the progress, of Homœopathy.

Ten years ago, the name was almost unknown to the public of Edinburgh; for it was in October, 1841, that the inhabitants of Stockbridge were puzzled by the superscription over the door of one of the houses in that district of the new strange word. The sign bore "Homœopathic Dispensary." The institution was under the charge of Dr Rutherford Russell and Dr Francis Black, who are stated to have independently, but simultaneously, determined to pursue in Edinburgh the practice of their profession, according to the system thus indicated. As they regarded the mode of treatment they intended to pursue to differ most importantly from the more common modes, they appear to have thought it only a duty to their patients to let that be known by a sufficient designation of the Institution. Whatever may be thought of the prudence, every one must admit the manly courage, of such a course. For two young men thus to throw down the gauntlet before their equals and seniors, in a place where the practitioners of medicine are so many and so influential as they are in Edinburgh, indicated either strong faith or reckless daring. The consistent zeal and perseverance of both of these gentlemen, in the exclusive practice of the Homœopathic System, seems to entitle them to credit for an unswerving faith in it. They were young men at that time; and both were Graduates of the University of Edinburgh. I am led to understand from their associates and teachers that, as students, they were both distinguished for ability and industry; and it appears that, after taking the degree of M.D. in Edinburgh, they both had the advantage of foreign travel, and of study at one or more of the celebrated Continental Schools.

My only purpose in these personal remarks (for which I hope to be pardoned by the gentlemen to whom they refer), is to establish this fact—that it was by graduates of our own University, and these noways inferior in status or acquirement to other medical practitioners, that this method of practice was first introduced into Edinburgh, or, at least, publicly professed. The next medical practitioner of it who appeared on the field was Dr. Wielobyski, a native of Poland, who (as he states in a recent letter to the Editor

of the "Witness," June 7, 1851), after having obtained the degree of Doctor in Philosophy at the University of Berlin, intending to settle in Cracow, was imprisoned, like many of his countrymen, for political reasons; and, like few of them, having escaped, made his way to Edinburgh, ignorant of our language, about twelve years ago. Having pursued his studies successfully, he obtained the degree of M.D. from our University; and, after having been for two years assistant-surgeon at the Maternity Hospital, began to attend the Homœopathic Dispensary. The result was, that he also became a confirmed convert to the new faith, which he has now practised during many years; his abilities and indomitable energy having secured for him, in spite of all the disadvantages of a foreign origin and mother-speech, a large and lucrative practice; indeed, a strong position in the hard-fought field of our Scottish metropolis. From Dr. Lyschinski, another native of Poland, who has attached to himself many influential friends, also a devoted disciple of Homœopathy, there is no published statement to which I can refer. The next convert whom I have to name is Dr. Henderson. It is quite superfluous to say anything on the head of Dr. Henderson's distinguished acquirements. The fact that he was selected by the patrons, out of all the candidates proposed for their consideration, as the best qualified for the chair of General Pathology in the University, speaks volumes. It is also quite notorious, and indeed appears from the certificates produced by him, that he held a very high place in the estimation of the members of his profession, until he was found to have been experimentally testing, and finally to have adopted, the Homœopathic system. His "Inquiry into the Homœopathic Practice of Medicine" was published so long ago as 1845; and the large experience he has since acquired, in a very extensive practice, appears to have fully confirmed to him the convictions, which were the result of careful but more limited experiments on the subject of the action of Homœopathic remedies. He began, and it was his intention to have pursued, the practice of this method in the Infirmary, as Professor of Clinical Medicine, and one of the Physicians to the Institution; but, the Managers having requested that he would discontinue such practice, he felt his duty rather to resign, which he accordingly tells us he did, at the termination of the course of lectures which he was then delivering. It is to be

regretted that so good an opportunity of testing the value of the Homœopathic system should thus have been lost.

It seems unnecessary for my present purpose to inquire how many other disciples from among the Graduates of the Edinburgh University the new doctrine can justly boast of. I am told they are not a few. It may, perhaps, be worth mentioning what is told of Abercrombie; that, some one having mentioned to him that Dr. Henderson was engaged in the investigation of Homœopathy; he said something to this effect—"I am glad of it; now we shall see whether there is any truth in it;" and of Davidson, that he said to a friend, that, had he been a younger man, he should have thought it his duty to study the system. We have few, if any, remaining who deserve to be named with such men as these. It appears also, from a published letter of Liston's, that, before his death, he had become convinced of the efficacy of the Homœopathic remedies.

If it be asked, What has been the progress of Homœopathy among our laity? the question is not easily answered. We learn from the last Annual Report of the Homœopathic Dispensary, now before me, issued under the authority of a most respectable Committee of Management, that the Institution was founded more than nine years ago, having been in effective operation the whole of that time; during which "there have been in all above fifteen thousand patients entered on the books;" and, from one of the previous Annual Reports, it appears that patients have come even from distant parts of Scotland for the sake of attending it. Looking over the list of subscribers to this institution, one would say that it is distinguished as containing the names of many persons of the highest respectability. It may be in the recollection of many of our citizens, that, during the prevalence of cholera in Edinburgh (1847-48), the physicians of this Dispensary, with the assistance of a resident house-surgeon, gave attendance at all hours, day and night, for the relief of the poor; and the second Annual Report states the returns communicated to the Board of Health to show, that no fewer than 236 cases of cholera were thus treated; the physicians visiting patients in all parts of the city and its suburbs. The results of this treatment seem to have been eminently successful.

But the system is not native to Scotland, although introduced

among us by Graduates of our own University. It had been practised in England before it was practised here. Still earlier, it had been extensively practised on the Continent.

It is now just one hundred years since Hahnemann was born; and in Leipzig, from which he was banished, while as yet an "unaccredited hero," there is to be a statue erected to his memory, during next month (August), in one of the most public squares of the city. There, as well as in Vienna and elsewhere, there have long been in operation Hospitals in which the practice is exclusively Homœopathic; and the system, at first prohibited, is now distinctly recognised by the respective governments in Austria, Prussia, and Saxony, not to mention the lesser German States. It has long been extensively practised in Paris; and the distinguished M. D'Amador, Professor of Pathology in the University of Montpellier, has, for many years, publicly taught it, as yet without molestation. In England, its progress has been very rapid. Ten years ago, there were probably not ten physicians practising it. Now, as appears from an alphabetical list appended to the last number of the "British Journal of Homœopathy," it numbers in Great Britain and Ireland, no fewer than *one hundred and forty-eight* medical practitioners. Recently, two Hospitals have been opened in London, and one in Manchester, for the practice of it. I have before me a copy of the constitution of one of those in London, termed "the Hahnemann Hospital," with a list of subscriptions annexed. It is under the distinguished patronage of the Chevalier Bunsen, the Duke of Hamilton, and the Earl of Wilton; and Lord Robert Grosvenor is president; three of five vice-presidents being Members of Parliament. In case you have any curiosity to look at it, I shall send it you, my Lord Provost, along with this letter. I think you will agree with me, that the adherents of Homœopathy, among whom are included such variously distinguished men as the Archbishops of Canterbury and of Dublin, the late Dr Arnold, the Chevalier Bunsen, Principal Scott of Owen's College, the Marquess of Anglesea, and Richard Cobden, are not likely to allow themselves to be put down by the Edinburgh or by any other College of Physicians. Perhaps some of our courtly friends will be interested to learn, that last month there was a grand ~~banquet~~ *dinner* in London, for the benefit of this Hospital, under the

auspices of no less august a patroness than H.R.H. the Duchess of Kent.

I have mentioned the "British Journal of Homœopathy." It was begun in 1843, and has now reached the ninth volume. It is not popular, but strictly medical; and, so far as I have had occasion to read it, will bear comparison, I think, with the best of the other medical journals. However that be, that a Quarterly Journal should have been maintained for so long a time, is a fact the significance of which I need not point out. As illustrative of the wide extension of the same views in the United States of America, I may mention that Radde, a publisher in New York, has found it worth his while to reprint this journal, and, as he states, to the large amount of one thousand copies.

Such being the origin in Edinburgh, and such the present acceptance of the Homœopathic doctrines, I have no doubt you will agree in my conclusion, that, whether true or false, it has claims to respectful attention; if not for its own sake, for the sake at least of those who are its resolute and conscientious adherents and practitioners. I shall now call your attention more particularly to the treatment which it and they have lately received at the hands of our Royal College of Physicians. The resolutions which afford the text for my remarks will be found in the Appendix; but, indeed, after what has been already said, I think it quite unnecessary to make many observations upon them. Disregarding their clumsy, inappropriate form and phraseology, the substance of them seems to be as follows:—(1.) That the College had said before that it would have no dealings with the Homœopaths; (2.) That it requires those of its members who have adopted the forbidden views to resign; (3.) "Inasmuch as no Fellow of this College, nor any other physician, can, by any possibility, without derogating from his own honour, and from the honour of the profession, meet practitioners of Homœopathy in consultation, or co-operate with them in the other common duties of professional life;" and (4.) That unless they so resign they may look for expulsion.

The first, second, and fourth I may take together; the third I shall consider separately. The three together just seem to amount to this—that the College never has tolerated, and never will tolerate, Homœopaths; the other (3) expresses the only reason—

because it would be in derogation from the honour of any Fellow of the College to meet a Homœopathist in consultation. How or why it should be so, the College does not deign to inform us. *Ipsedixit* that it is so—is not that enough for us and for them? Not exactly, I am afraid. It wont do just to say, “I am a better soldier.” We add—“Let it appear so; show us in what respects you claim superiority, and we shall give you all due honours. All that the public know in these respects is, that you are the more numerous of the two—that, at the meeting referred to, you were even unanimous. If you be many, and they be few, such measures taken against a small minority may expose you to the charge of cowardice, as well as injustice. And if it be the case, as is alleged, that, in some five years, as many of your members have become converts to the new faith so devoutly abhorred by you, while, on the other hand, you have made no converts from their ranks, there is no great room for your boasting. It is a mere matter of time and figures to calculate in how many years, at the same rate of conversion, the majority will be on the other side; or, in how much longer a period, should the threatened expulsion of all converts be put in execution, your College will have become extinct by this process of exhaustion.”

It appears, indeed, from the first resolution, which assumes that Dr Black's rejection, on a vote by ballot, was upon the sole ground of his having made profession of Homœopathy—that, otherwise, he would have been admitted. There was then no alleged inferiority in status, reputation, or professional attainments, except that he had embraced this hated heresy. In short, the College says, that the practitioners of Homœopathy are inferior to the other members, because the other members are superior to them; it all rests on their good opinion of themselves; possibly a reason for great complacency on their part, but hardly a sufficient answer to the Homœopathists. What if they say, as some of them do in too unmeasured terms, that *they* are the superiors, the others the inferiors? If the matter is to be at all decided, we must have a more objective independent test than their respective opinions of their own merits. Two obvious tests suggest themselves; the course of general and medical education attested by graduation, and the relative success in practice. On the first of these, the College has nothing to say. It cannot pretend, with any plausi-

bility, that its fellows are in any respect better educated than the practitioners of Homœopathy, whom we have named. Nay, on the contrary, the Homœopaths seem fairly entitled, in this respect, to claim superiority, inasmuch as, besides being familiar with all the medical and general knowledge required as the condition of graduation, they have also acquired, as the condition of Homœopathic practice, familiarity with a detailed and delicate system of Pharmacy. On the other head—success in practice—the comparison is not so easy. This, however, it is right to say, that the converts to the young faith are always anxiously challenging the comparison, and, so far as in their power, by the publication of hospital and other credible statistics, facilitating the inquiry. It will hardly be thought to the disadvantage of Dr Wielobycki, that he was already in possession of the degree of Doctor in Philosophy from the University of Berlin, when he obtained also that of Doctor of Medicine from our own. Were the College in a position to say, “We have not condemned Homœopathy blindly; we have made full, anxious trial of it, and found it wanting,” then there would only be a conflict of judgments, neither being entitled *ex facie* to preference. If, on the other hand, the College cannot say this (and they have not said it), and have not alleged any reasonable ground for their conduct in this matter, are we not entitled to conclude, that their pretended superiority is mere insolent boasting, highly discreditable to themselves, and not likely to have much weight with others? In one sense it is true, that, to acknowledge the claims of Homœopathy, is derogatory to their “honour.” There is a vast swarm of contemptible creatures hovering about the outskirts of that, as of every profession—alas! some in the very midst of it, who will praise this unworthy attempt of the College to crush by force an advancing rival system, which they have not yet overcome by arguments or experiments; and will be ready with any required amount of aid in the form of calumny, imputation of motives, invention of lies, to support their friends within the College whom they are now loudly applauding. Who but the basest would receive “honour” from such as these?

I have always observed, that the fires of persecution burn brightest when men’s faith is decaying. It is not he who feels deeply the universal supremacy of truth, who will lightly cry out,



"Heretic! to the stake!" Rather it is he who feels that he leans on the people and things round about him, and fears that, if these were shaken, his own beliefs would be left without support. And it is worthy of remark, that the energetic faith of the young school in medicine stands remarkably contrasted with the powerless scepticism of the old. I say not that it will prove itself to be altogether well founded—very probably not; but I say emphatically, that, well-founded or not, there are those who believe in it, and, so help me God, I will do what I can to insure them free scope for their convictions.

It cannot have escaped your notice, that, in these resolutions, the College have given no definition of what it is they mean to condemn. I have already stated the Homœopathic law to be, *similia similibus curantur*—"like cures like." Does the College, then, mean to commit itself to the persecution of every member who at any time shall act in accordance with this law? Hardly, I suppose. The other peculiarity of the condemned system is the smallness of the doses. Will the College, in its sublime dignity, adjudicate upon each prescription? Before they proceed to the extremity of expulsion now contemplated, they may find it necessary to pass acts or statutes against Homœopathy, the violation of which shall infer that penalty. But, in that case, they will probably have to be more explicit than in these resolutions; they will have, I suppose, to define, with something approaching to precision, what it is in practice which constitutes the capital offence. With a view to see how the thing would look on paper, and not trusting myself in a matter of such importance, I have applied to the learned Paulus Pleydell, junior, and, by his aid, have prepared the following two clauses of the required statute, of which the Royal College is quite at liberty to make free use in framing its anticipated laws on this subject. The first clause runs thus:—

"1. No Fellow of this College shall, under the pains herein provided, prescribe, give, or administer, or cause to be prescribed, give, or administered, to any patient, any drug or medicine which shall be calculated to produce, or shall be capable of producing, or shall be supposed to be capable of producing, in or upon the body of any person in health, any symptoms, appearances, or effects at all resembling, or similar to those which, for the time being, shall be seen, understood, or imagined to be present in or upon the body of such patient."

The second takes the following form :—

"2. No Fellow of this College shall, under the pains herein provided, prescribe, give, or administer, or cause to be prescribed, given, or administered, to any patient, any drug or medicine in any other smaller quantity than is indicated in Schedule A annexed hereto."

*Notes.*—[Schedule A to contain a list of all known remedies, including chloroform and mesmerism, with the *minimum* dose of each, the *maximum* being left to the discretion of each physician. Great care will be required in framing this schedule, as there are many Homœopathic remedies in use, the qualities and powers of which are nearly unknown to the Members of the College; and it might be inconvenient were the *minimum* quantity indicated in any case a poisonous one.]

I cannot take leave of this branch of the subject, without calling the special attention of the College to the remarkable statement of their late esteemed Treasurer, Dr. Ransford's "Reasons for Embracing Homœopathy," which I have just been reading in the new number of the "British Journal of Homœopathy." There are disclosures in it which, if they do not throw light into the recent hidden recesses of the College, at least make their darkness visible.

Leaving the College of Physicians to complete its statutes against Homœopathy, and to act farther in the matter as it shall be advised, I will now call your attention to the Second Act in the development of this conspiracy; one directly touching the University.

It appears that Mr Alfred Crosby Pope (son of the Rev. Dr Pope of Leamington, a man of high reputation) has been pursuing his medical studies in Edinburgh. The certificates of the various Professors, copies of which I have seen, bear that he was "very regular" in his attendance on all the classes; and I understand him to have the character of being a very diligent student. After having gone through his first examination, and the greater part of his second, without any difficulty, he was subjected to an examination by the Medical Faculty, in the month of June last; and the following is his statement of what took place. It is extracted from the 37th Number of the "British Journal of Homœopathy" (July, 1851), pp. 512-14:

"The Medical Faculty of this University have, it appears, decided that if any of their candidates intend to investigate the merits of Homœopathy, they shall be remitted until such examination

shall have satisfied them of the fallacy of this proscribed system of medicine. I am, I believe, the first who has lost the degree of M.D. under these circumstances; and, since this is the case my friends have thought it right that I should give as correct an account as possible of all that was said to me at the examination on this point: and therefore, without any farther remark, I will proceed to the matter on hand.

"During the first part of my examination, no reference was made to Homœopathy; and it was not until after Dr Christison had examined me on *Materia Medica*, and expressed himself as satisfied with me on that point, that he put the following question:—He said (as nearly as I can recollect), 'I have been informed, Mr Pope, by a colleague, that you are intending to practise Homœopathically; now, I don't believe it; but tell me, is it the case?' 'I replied, that I could not give a decisive answer, until I had fully studied the subject, which I had determined to do, as I felt it to be a duty, seeing that so many men of acknowledged talent were daily becoming converts to this new system. Mr Syme, who was present, then asked me if I would burn my diploma, or return it to them, if I became convinced of the truth of Homœopathy.' To which I replied, that I saw no necessity for doing so, considering, as I did, that my diploma was merely an attestation of the amount of medical knowledge to which I have attained. Mr Syme then said, that he could not see how any honest man could practise Homœopathically, and call himself a Doctor of Medicine of a University which repudiates him. After this, Mr Syme remarked, that they had nothing more to say to me there, but that they were quite satisfied with the examination. When I had been examined on the remaining subjects, I requested the porter to obtain my discharge for me, on which I was told to return to-morrow, at 4 P.M., when there was to be an extraordinary meeting of the Medical Faculty. The next day I waited at the University from 4 until 5 P.M., when the meeting terminated, and I was informed by Dr Balfour, the Dean of the Faculty, that he was desired by the Medical Faculty to announce to me that they were not satisfied with my examination, and, in the second place that they were not satisfied with the line of practice which I intended to adopt. I then said, that I did not understand what was meant by the first part of the

objection raised against me by the Faculty, as last evening all the examiners seemed perfectly satisfied with me. On this, Dr Balfour told me, that I knew very well that I was very deficient in Medical Jurisprudence and Surgery, and that I should at least require to be re-examined on these subjects. I then asked him if the Medical Faculty would require anything more of me than my examination, if I came up again in July. 'Oh!' said he, 'we shall want to know whether you intend to give the decillionth of a grain of nux vomica, or one or two grains, which is the ordinary dose.' Said he, 'You know quite well that we grant degrees here licensing to practise that system of medicine which is at present established, and therefore we must know whether you intend to do so before you can graduate.' I told Dr Balfour that I had a perfect right to study what I chose, and that I thought it my duty to study Homœopathy. To which he replied, 'But what is the necessity, if you are satisfied that you can do good with what has been taught you, and particularly when you hold the degree of M.D.?' To this I replied, that if any one offered me a method of treatment by which I had a greater chance of curing my patients than that which was at present in vogue, I should certainly feel it my duty to investigate it. 'Well,' said the Dean, 'you must certainly know whether you intend to practise Homœopathically or not. You must be quite decided on that point, and, as I am merely telling you what I have been desired to do by the Senatus, I have nothing more to say to you.'

"After this, of course, I left. My remission, or reponement, is therefore grounded on a want of sufficient knowledge of Surgery, and Medical Jurisprudence, and on my most decided determination to investigate Homœopathy most carefully and impartially. With regard to the first objection to my graduation, I wish it to be observed, that, were that a real objection, I should have been apprised of it on the evening of the examination for I have the highest authority for stating, that a rejection for want of knowledge was never remitted to an extraordinary meeting of the Faculty, but done at once at the examination—two or three Professors club their heads together at the time, and the thing is done. I had understood that Professor Miller, who examined me on Surgery, was satisfied with me; but he has

since informed me that I was 'rusty' on some points." I can, however, honestly state, that there was, I believe, only one question out of a great many that he asked me which I did not answer.

"More than one of the Professors has informed a friend of mine that my examination was unexceptionable. But Professor Miller stated to me, personally, that he had no doubt they would pass me in July, were I convinced by that time of the fallacy of infinitesimal doses; volunteering this information out of private friendship, and hoping that I would make no farther use of it, an amount of consideration which so much friendship and so little wisdom cannot look for at my hands.

"The above facts are, I think, sufficient to prove that it is not from a deficiency in professional knowledge that I have been remitted, but solely on account of my fixed determination to study Homœopathy.

"37 Clemens Street, Leamington, June 21, 1851."

The result then is, that Mr Pope has been rejected. It is needless to say, that, if this has been done wrongfully, the wrong is of a most serious nature. That a student of medicine, who had pursued his studies in our University with regularity and diligence—who had spent much money, and more precious years, in preparation for a profession to which he looked forward as his only way of acquiring a position in society, and, indeed, the very means of living and who appeared just on the eve of obtaining the University Degree, which was to be his title to enter upon that profession, should have found himself suddenly stopped on the very threshold by an obstacle altogether unanticipated and unprecedented—this, you will admit, if a wrong, is a very great one. I shall have to consider presently how far the introduction of such an impediment can be justified. In the meantime, let us look in the other direction, and see how far Mr Pope's statement touches the honour of the Medical Faculty, and, indeed, of the Senatus of the University.

If the rejection be **PROFESSEDLY** on the ground of his having intimated an intention to investigate the merits of Homœopathy, and if the investigation justified it to practise that system, such rejection may be undignified, inconsistent with the advance of medical practice, in violation of all usage, eminently discreditable

to the University, and illegal, but the honour of the examiners will not be necessarily impugned. If, on the other hand, the *real* ground of rejection was a supposed toleration or preference for the Homœopathic system, and the *professed* ground be deficient knowledge in Medical Jurisprudence and Surgery, the honour of the University is seriously compromised. It will be justly condemned for refusing degrees upon false pretences. If such be its corruption that this is possible, the public can have no security that it will not also *grant* them on false pretexts; to those to whom indifference or inclination towards Homœopathy seems such a vice as to justify this extreme punishment, inveterate hatred of it may seem such a virtue as to cover many grave deficiencies.

I need not say to any honourable man, that, while it is exposed to such imputations, our University is justly in disgrace—a disgrace which will attach also to the other Members of the Senate, in whose names the Medical Degrees are granted, although all the guilt will rest with the Medical Faculty.

I have not said that such guilt has been incurred; but no one can help seeing that on the very face of Mr Pope's statement it is more than suggested. I shall now enquire what is the just inference from that statement—in the meantime assuming it to be substantially true.

• I say, *substantially*; for, in such reports of verbal proceedings, precise accuracy is not to be looked for; but it would be very singular if one in Mr Pope's position misunderstood the import of the Dean's momentous communication to him. That a student should, in such circumstances, venture, to make a false accusation against his examiners seems to me highly improbable; and all that is to be gathered of Mr Pope's reputed character tends to the same result.

Upon this statement, then, it would appear that there were two distinct grounds, solemnly announced by the Medical Faculty of the *Senatus*, of refusing a degree: insufficient attainments in two of the branches of study, and objectionable views with reference to Homœopathy. It is certainly very unfortunate that these dissimilar grounds of judgment should not have been so separated, that each might have been dealt with singly; and were Mr Pope again to offer himself and to pass an approved examina-

tion upon the two unexhausted subjects, the question would then be the very simple one—Whether or not the avowal of adherence to any medical creed, or to any system of practice, as well as the sufficient knowledge of medicine, be a legitimate condition of graduation for the Medical Faculty to impose? But, although not in so pure a form as might have been conceived, this question does seem to be sufficiently raised by Mr Pope's account of his remarkable interview with the Faculty; for, on his asking whether anything beyond such an examination would be required of him should he again appear for examination, he was answered, by the Dean, as the organ of the Faculty, "Oh! we shall want to know whether you intend to give the decillionth of a grain of *nux vomica*, or one or two grains, which is the ordinary dose?" It is difficult to read this narrative without coming to the conclusion, that it was not by inadvertence, but by design, that these essentially distinct questions were thus confused, else why, in violation of all usage, should the judgment of the Faculty upon the ordinary examinations of the candidate have been withheld, until the extraordinary meeting should put them in a position to give judgment also upon the extraordinary question, which has now for the first time, so far as is known to the public, been made a subject of discussion. It is no fault of mine, or of Mr Pope's (if his statement be true), that the Faculty have thus exposed themselves to the suspicion of having acted unfairly; and, for my own part, I shall be exceedingly glad to see the good name of the University cleared from all the breathings of just reproaches which may have sullied it. In so far as the candidate's rejection was *bond fide* on the ground of deficient attainments, of course it cannot be objected to. No wise friend of the Homœopathic, or of any other system of medical practice, will censure the attempt to raise the standard of medical education. It is to be observed, however, that the systems do not come into conflict on either of the fields which Mr Pope has to re-tread. Surgery and Medical Jurisprudence have little to do with Therapeutical Pharmacy; and, as Mr Pope had already passed his examinations upon *Materia Medica* and the *Practice of Physic* to the satisfaction of the examiners, the questions put to him on the subject of Homœopathy and the administration of medicines cannot be understood as at all supplementary to his examinations upon those

heads, but relate to an entirely distinct question, which I now propose to consider.

It is not a little remarkable, that, simultaneously with a very serious and general movement towards the abolition of religious tests in the University, there should be an attempt, on the part of the Faculty of Medicine, to introduce a Medical Creed or Confession of Faith, a profession of adherence to which is to be required of candidates, as a preliminary condition of obtaining Degrees. The two certainly stand remarkably contrasted. Of religious tests, it may be said that they have the sanction of ancient and very extensive usage; that (however ineffectual they may now be judged for the ends contemplated) they have, at least, this rational foundation, that they are connected with an Established Church and determinate faith; that they aim at the expression of that which we are generally agreed is, in substance, if not in form, abiding, and even eternal; that they are neither arbitrarily framed nor arbitrarily imposed, being formal, well considered documents, an assent to which is known to all the world as the legal condition of office. In all these respects, how different is the other! This new test in medicine—an imposed abjuration of all intention to inquire into the merits of a system of practice advocated as the best by an influential and increasing body of our countrymen, lay and medical—is altogether an innovation; it has no rational foundation, there being no *established system* of medicine, and no substantial agreement even among the so-called orthodox of its practitioners—no permanency, its whole history being a narrative of revolutions, so momentous that, even within the memory of living men, it has been so greatly changed that it would be rash for any one to foretell that, fifty years hence, there will be anything like one-tenth of the present usual modes of treatment still in observance. Hence, it has no written, formal creed or confession, to be set before the eyes of the matriculating student, and to attend him along his course, as the recognised condition of graduation; on the contrary, these examiners of the Faculty of medicine have improvised this Test; and it is still unwritten and indefinite. Let them attempt to put it in writing, with the necessary definitions, and they will be the first possibly to laugh, if they do not blush for shame, at the absurdity of the result. Let them exhibit in detail, define the



prohibited practice, assign a *minimum* dose of each known or unknown drug, and fix on the *similar* law as the only one according to which remedies shall *not* be given. Let them do this, and exhibit the result, if they can and dare. At present, all we can learn in detail from this unwonted examination is, that the *minimum* dose of *nux vomica* which can be given, without loss of character, is one or two grains. For us laymen, whose bodies are the subjects, this is not a very comforting rule. We should rather have had the *maximum* stated; and, since it appears (on the evidence of Dr Christison) that three grains of the alcoholic extract, or (on the evidence of Dr Trail\*) that fifteen grains of the powder of this common poison have caused death, we may look with some anxiety to so liberal a *minimum* quantity. How near a poison-dose will the *maximum* be?

It is very singular, that the examining professors should have fallen into the blunder of supposing that any one system of medical practice is either sanctioned or condemned by the University. According to Mr Pope's statement, Mr Syme observed, "that he could not see how any honest man could practise Homœopathy, and call himself a Doctor of Medicine of a University which repudiates him;" and the resolutions of the College of Physicians contain language to the like effect. Mr Syme seems to think the University is like a Pennsylvanian debtor thus addressing his creditor—"How on earth can you have the face to claim anything from me, sir? I repudiate the debt!" Happily for the credit of our Alma Mater, she does not thus disown her lawful children. Her Graduates, whatever system of practice they may follow, are her acknowledged Graduates still, and quite entitled to wear all the hard-won honours she has crowned them with. Of course, Mr Syme may repudiate the Homœopathists and all their remedies; refusing, to his patients' great detriment, to prescribe aconite for fever, and arnica for wounds, because they both own a Homœopathic source. We are told that Mr Syme asked Mr Pope if he would burn or return his Diploma (by which, we suppose, the Certificate of Graduation or the Degree was

\* Taylor's Medical Jurisprudence. *Poisons, Nux Vomica.*

(To be concluded.)

## SABAL•SERRULATA.

Dr. Will S. Mullins, of Henderson, Kentucky, submitted a proving of *Sabal Serrulata* in a female to the American Institute of Homœopathy at its forty-fifth Session, held at Washington, June 13 to 17, 1892. We give the following Résumé of the pathogenetic symptoms as drawn up by him. As regards the use of the drug he says :—

*Sabal serrulata*, from the nature of our law of cure, is not a "cure-all" as some seem to think. It stands alone as a drug of inestimable value when prescribed according to the following characteristic indications in the male :

*Enlarged prostate, with throbbing, aching, dull pains, discharge of prostatic juice. At times discharge of mucus, also a yellowish watery fluid (the latter—discharge of mucus and a yellowish watery fluid—shows its power over mucous membrane when cystitis has followed as a secondary condition, depending upon an irritable and enlarged prostate as the primary cause) weakened sexual power, loss of thrill, orchialgia and epididymitis orchitis, when associated with an enlarged prostate.*

Depression of spirits, lack of mental vigor, with a general letting-down of the nervous and muscular system, with muscular jerking of the body for some time upon first lying down. Drops off to sleep, then awakened by this general muscular and nervous jerking, 30 drops in half glass of hot water before supper ; repeated again at bed-time. About six such doses will give your patient a calm sleep.

As regards the prover he says :—

Miss , a former student of mine, and a very intelligent lady of 23 years, mediumly well developed, slightly bordering on the angular ; small breasts, red hair ; blue eyes ; height, five feet seven inches ; weight on December 8, 1891, 109 pounds ; bust measure, 32 inches. General health fairly good ; menstruation heretofore always regular as to time, quantity and duration. Was told, on December 8, 1891, to commence and take of an unknown drug to her, *Sabal serrulata*, obtained from my pharmacist, Messrs. Munson & Co., St Louis, an unusually beautiful and pure article.

RESUME OF THE PATHOGENETIC SYMPTOMS OF SABAL  
SERRULATA.\*

- Head.**—1. Sharp pain in temporal region ; first day.  
2. Slight frontal headache first day.  
3. Vague, rather dizzy headache second day.  
4. Shooting pains in temples and across forehead ; second day.  
5. Slight dull ("frontal") headache, worse in right temple ; third day.

\* In the summary of pathogenetic symptoms I have counted the days from each time the drug was resumed by the prover.

6. Severe pain in right temple, then on top; third day.
7. Pain in both temples and across the forehead; fourth day.
8. Slight pain on top of head upon awaking; fifth day.
9. Sharp pain in left temple, and slight frontal headache; fifth day.
10. Similar pains as No. 9, but slighter; sixth day.
11. Vertigo; with a slight frontal headache; second day.
12. Soon after getting up, a very sharp pain in left temple; third day.
13. A sudden pain in centre of forehead; fourth day.
14. Terrible sharp pain in right temple; second day.
15. Pain across forehead to both temples, worse in right; first day.
16. Vague aching on top of head; fifth day.
17. Pains on top of head; fifth day.
18. Pain in right temple running across top of head to left temple; seventh day.
19. A *very* sharp pain in left temple; ninth day.
20. Sharp pain in either right or left temple, running up across the forehead, with pain in left ovary and uterus; tenth day.
21. Severe pain in left temple, and a sharp pain on top of head; first day.
22. Dull, aching pain in right temple and on top of head, almost unbearable by 3 P.M.; second day.
23. Dull pain in forehead; third day.
24. Pain running up from nose and centreing in forehead; fourth day.
25. Pains in right and left temple were felt until eighth day.
- Thorax.**—26. Mammary glands quite tender from pressure, stinging soreness after cold bath; second day.
27. Mammary glands feel swollen; third day.
28. Sharp pain in left side of chest running through left mamma; fourth day.
29. Mammary glands sore and swollen; sixth day: remained so until fourteenth day.
30. Mammary glands feel sore; third day.
31. Voice is changed, throat feels husky; third day.
32. Mammary glands remained sore and tender until sixth day.
33. After five doses soreness of mammary gland return; first day.
34. Mammary glands more tender; second day.
35. Mammary glands very tender and seem swollen; fourth day.

36. Very sharp pains in mammary glands ; ninth day.
37. Soreness remained in mammary glands until eighteenth day.
38. Severe pain in left side of throat one hour after taking medicine ; first day.
39. Itching of mammary glands ; second day.
40. Mammary glands very sore to touch ; third day.
41. Itching in left mammary glands ; third day.
42. Soreness of mammary glands remained until eighth day.
- Stomach.**—43. Sharp pain running up through stomach ; second day.
44. Severe pain in left side of stomach ;
45. Appetite good throughout.
- **Abdomen.**—46. Stinging pains running up left side of abdomen ; second day.
47. Sharp pains running up and down front of abdomen ; continued until bed time ; third day.
48. Pain running up and down right side of abdomen ; third day.
- Genital Organs.**—49. Awakened by stinging pain running up from left ovary into abdomen, and also a sharp pain in right ovary second day.
- 50. Slight stinging pain in left ovary, at 2 P.M. ; second day.
51. Sharp pain in right ovary, running down right thigh ; third day.
52. Sharp pain in right ovary ; third day.
53. Stinging pain in uterus ; third day.
54. Stinging pain in right ovary ; fourth day.
55. Slight pain in right ovary upon awaking ; fifth day.
56. Sharp pain in right ovary ; fifth day.
57. Stinging pain in right ovary, lasting one hour ; sixth day.
- 58. A tense, slightly heavy feeling over womb ; second day.
59. Pain in left ovary, running down the thigh ; second day.
60. Severe stinging pain in right ovary running down thigh ; second day.
61. Menses delay four days.
62. Sore feeling in left ovary ; third day.
- 63. Awakened by a severe stinging in right ovary, 5 A.M. ; fifth day.
64. Pain in left ovary after going to bed ; fifth day.
65. Slight pain in left ovary from 3 P.M. until went to sleep ; sixth day.
66. Slight pain in womb ; seventh day.
67. Awakened by a most distressing itching of labia majora ; eighth day.
68. Pain in left ovary and severe pain in uterus ; eighth day.
69. Very sharp pain in left ovary ; ninth day.
70. Pain in left ovary and uterus, coming and going between 2 and 7 P.M. ; tenth day.
71. Pain in uterus now and then until eighteenth day.
72. Pain in left ovary and uterus at irregular intervals ; fourth day.

73. Sore, heavy feeling in uterus until bed-time ; fourth day.

74. Pains in right and left ovaries and in uterus at irregular intervals until eighth day. Menses delayed nine days.

**Trunk.**—75. Aching across lower part of back ; fourth day.

76. Severe pain in back ; fourth day.

77. Deep pains in right side of back, low down ; second day.

78. Fearful backache, low down ; second day.

**Extremities.**—79. Sharp pain running down right thigh ; third day.

80. Sharp pain in right thigh ; four day.

81. Pain running down left thigh ; second day.

82. Sharp pain in right thigh ; second day.

83. Aching in calf of right leg seventh day.

84. Aching in left knee and calf of leg ; first day, which continued until bed-time.

85. Pains frequently in left thigh ; fourth day.

**Sleep.**—86. Awakened by stinging pains in both ovaries ; second day.

87. Awakened at 5 A.M. by a severe stinging in right ovary ; fifth day.

88. Awakened at 1 A.M. by a most distressing itching of labia majora ; eighth day.

**General Symptoms.**—89. A feeling of buoyancy most all the time notwithstanding the pains.

90. All pains were aggravated in early morning or from noon until bed-time.

91. Pains in ovaries and uterus, worse on motion.

92. Character of pains mostly sharp and stinging.

93. Most pains ameliorated by sleep.

94. An uncomfortable feeling all over the body ; third day.

After over two years of as constant study as one could spare from a busy life, my work on this drug is about done ; the results obtained exceed my most sanguine expectations. Am under the opinion the feeling of swelling and soreness in the breasts, and the uncomfortable feeling all over the body which occurred the third day, are what Dunham calls "The Central Symptoms ;" the pains in the head, thorax, stomach, abdomen, back, ovaries, uterus, thighs and legs are "the Peripheral Symptoms." Time alone will either verify or falsify that opinion. To a certain extent *Sabal serrulata* is my child, of whom I am proud ; not that I am the "Father of discovery," but I found it in the chaos of speculative medicine, uncouth undressed, and naked of any garments of scientific accuracy as to its Homeopathic application. I took it into my office and breathed into it a Hahnemannian spirit, clothed it with garments of clinical application, and fed it with the cream of a proving, *according to my own ideas of how it should be done*—which may differ from some of my fellow-workers in the manner of proving it. I might have begun with the higher attenuations and gone down to the tincture.

## EDITOR'S NOTES.

**Alcohol and Bacteriology.**

Dr. Sims Woodhead, the President of the British Medical Temperance Association, speaking at a reception given last week at the London Temperance Hospital, said that the stage of opinion when it was supposed that alcohol was a necessary article of diet had now been passed. It should only be given in the same way as any other drug, and when nothing else would do as well. Statistics showed that alcoholics were more liable to phthisis, and experiments made recently in America indicated that animals to which alcohol had been given were more easily invaded by the micro-organisms which produced suppuration and anthrax. This agreed with the experience that those who took much alcohol were more liable to be attacked by cholera and to succumb during an epidemic than others. He added that experiments made in Manchester had shown that even small doses of alcohol produced some degenerative changes in the viscera.—*B. M. Journal*, March 13, 1897. •

**Permanganate of Potassium in Lupus.**

L. BUTTE (*Ann. de la Policlinique de Paris*, January) states that after having tried all the classical methods of treatment in lupus without satisfactory results, believes that he has hit upon a local medication which, without having the drawbacks of scarification or the cauter, brings about not only an arrest in the progress of the disease, but a real cure of the lupus nodules. The remedy is permanganate of potassium, which he has used for six months with excellent results. At first he employed this substance in lotions applied morning and night beginning with solutions of 1 in 200 to 1 in 100, and afterwards of 2 in 100. These applications seemed to cause an arrest in the progress of the affection, and this encouraged Butte to push the treatment. He accordingly tried daily applications, continued for 10 or 15 minutes, of compresses saturated with a 2 per cent. solution of the permanganate. At the end of a fortnight the nodules were shrunk, covered with a thin blackish crust, and gave to the finger no sensation of being raised; they seemed, in fact, to be destroyed. The other parts of the skin were smooth and tense. The applications cause some pain for an hour or two, but cocaine ointment speedily relieves this. Butte has used this treatment in 11 cases, in all with the same good results. The method has not, he admits, been tried long enough to make it possible to affirm that the

cures are complete and permanent. In the meantime, however, Butte is able to testify to the fact that the nodules have disappeared, and the progress of the disease has been arrested.—*Ibid.*

### Child in Utero crying during labour.

I was in attendance on a case of twin labour here recently where I applied the forceps to the head of the first coming child. Whilst using gentle traction, and the vertex being still upon the perineum, I was surprised, as was also the nurse, to hear the child cry! At first we thought we were deceived, but in a very short time after the sound was repeated, and before any part of the head was born the same phenomenon occurred several times. Nothing unusual happened during the birth of the second child, which came away naturally. I cannot say whether the pressure of the forceps had anything to do or not with causing the crying. There were no marks of it on the head and the boy is doing well. This instance illustrated the possibility of uterine breathing, as otherwise I cannot see how the vocal cords could have been called into play. I attribute the entry of air into the lungs as having taken place during the time I was putting the forceps into place in doing which no difficulty presented itself. Thinking the particulars may be of interest to the readers of THE LANCET I have pleasure in submitting them.—Dr. E. Fitzgerald Fraser in *Lancet*, Feb. 20, 1897.

### Eucaine as a Local Anæsthetic.

Eucaine, which is, according to Professor Charteris, a "methyl ester of a benzoylated oxypiperidine, carbo-oxylic acid," possesses some undeniable advantage over cocaine. It is capable of synthetic manufacture and so is cheaper; and it does not possess the mydriatic effect of cocaine. Whether, however, it deserves all the encomium lavished upon it in respect to its greater safety appears open to doubt. Professor Pouchet, in a paper read before the Société de Thérapeutique on Jan. 27th, asserts that eucaine is a powerful cardiac depressant, and in some instances produces sudden death without warning. Injection of 2 milligrammes into a frog caused slowing and irregular action of the heart, while a like dose of cocaine produced no effect. He regards eucaine as inferior clinically and as far more dangerous than cocaine. Upon the other hand, Professor Charteris and Dr. MacLennan recently communicated to the Royal Society of Edinburgh a paper dealing with the physiological action of eucaine, which gives that body a more favourable aspect. Solutions were injected hypodermi-

cally into guinea-pigs. A lethal dose of eucaine was found to be 0.09 gramme (per kilogramme of body weight), that of cocaine being 0.068. The phenomena of dying under eucaine showed less head rotation, less opisthotonos, less salivation, and less difficulty of breathing; the symptoms, moreover, took longer to develop than was the case with cocaine, while larger quantities than of the latter were required to produce toxic effects. The influence upon the heart is not mentioned. It must be confessed that we do not at present possess sufficient knowledge of the physiological and clinical behaviour of eucaine to pronounce a definite opinion upon it—*Lancet*, Feb. 27, 1897.

### **A case of Quadruplets.**

Dr. Edwin T. Goode has reported the following case in the *Lancet* for Feb. 27, 1897.

The rarity of the occurrence of quadruple births encourages me to bring before the profession a few details of a case I have just attended. It was unfortunate that I was not called in earlier to the case, but the patient resided in a village two miles away and her mother hoped to be able to manage without the aid of a medical man.

On Jan. 22nd, 1897, the woman gave birth to two children, her mother being in attendance, and as the "afterbirth" did not come away satisfactorily I was sent for the next morning. On my arrival fifteen hours after the birth of the first two children I found the mother considerably blanched from loss of blood, and on examination a bag of membranes presented, which on rupture was followed by the birth of the third child. Again examining a fourth child could be felt, and this was born in due course. There were three distinct placentæ and four cords. The presentations were—the first a vertex, the second a footling, and the last two vertices. The children were stillborn at between the fifth and sixth months. The commencement of labour was caused by the mother falling down. She has made an uninterrupted recovery. It was her third confinement.

### **Galvanic Dilation of Eustachian Structures.**

AN interesting application of electro-therapeutics in the treatment of aural disease is described by Dr. Arthur Duel in the *New York Medical Journal* of Jan. 16th. It consists in the employment of the the negative pole of a galvanic battery for dilating constrictions of the Eustachian tube too tight to allow of ordinary inflation, after the method sometimes adopted in treating urethral stricture. Dr.



Duel uses for this purpose fine copper bougies "securely mounted on No. 5 piano wire. These are passed through small insulated pure silver catheters and drawn back until the bulging portion of the bougie fits tightly in the mouth of the catheter." The other end of the wire is attached to a handle which connects it with the negative pole of a battery, the positive pole of which is in contact with the hand of the patient. The bougie is passed as usual along the Eustachian tube till it meets the constriction (as in the urethra there may be more than one of these). A weak current is slowly turned on and after from two to five minutes the bougie passes through the stricture with a slight pressure. It is then slowly withdrawn and the current gradually turned off before the catheter is removed. It is important that the current should be both opened and closed slowly. So far the results of this treatment are said to have been most satisfactory and Dr. Duel expects that the absorptive action thus illustrated will prove effectual not only in clearing the Eustachian passage in obstinate cases of constriction but also in causing resolution of hypertrophic deposits within the tympanum.—*Lancet*, Feb. 13, 1897.

### Rare Congenital Malformations. .

On Dec. 30th, 1896, a woman was delivered of a female child at full term after a natural labour, this being her second confinement. Directly the child was born I noticed that the hands presented a very unusual appearance, the fingers pointing upwards the elbow, and on examination I found that there was entire absence of both radii and both thumbs. When at rest the outer side of each hand—i.e., the index finger and its metacarpal bone—rested against the forearm, but by manipulation the hands could be brought down at right angles to the forearm, but no further, and there was great resistance to supination. The ulna in each arm was a little curved and seemed shorter than normal, but in all other respects the child seemed to be perfectly developed. On the third day, as soon as the mother's breasts became full of milk, she noticed that as the baby sucked the nipple, after drawing two or three times, the milk returned through the nose, and she had to take her from the breast. I examined the child's mouth and found nothing to account for it, and as this regurgitation continued, and the child began to waste, I suspected some obstruction in the oesophagus. I did not pass a bougie, as the nurse told me that the child had frequent attacks of cyanosis with much choking, and she seemed so fragile and weak that I did not think it would be wise to attempt it. In this way she continued to

live, but gradually wasted, and eventually died from exhaustion when thirteen days old.

I obtained permission to make a post-mortem examination and found that the upper part of the œsophagus was simply a cul-de-sac extending about three-quarters of an inch below the larynx, and that the lower part, as it came up from the stomach, opened into the trachea, near the point of its bifurcation. The stomach and intestines were quite empty and very thin, just as one would be expected to see them in a case of starvation. On opening the heart I found that the interventricular septum was not complete, being deficient in its upper part.

The case is an extremely interesting one, not only on account of the rare malformations, but also on account of the length of time the child lived without any nourishment whatever.—*Lancet*, Feb. 20, 1897.

### The Pleasures of Convalescence.

Charles Lamb has well described the "monarchal privileges" of a person while in the throes of acute illness, when he is unto himself the very "omphalos" of the world, and everything about him is ordered for his behoof. Compare with this self-centred sovereignty of the sick bed the fallen estate of the convalescent. The doctor takes his leave, and, to quote Elia: "Farewell with him all that make sickness pompous—the spell that hushed the household—the mute attendance—the inquiry by looks—the still softer delicacies of self-attention—the sole and single eye of distemper alone fixed upon itself—world-thoughts excluded—the man a world unto himself—his own theatre—

What a speck is he dwindled into."

Yet there is something to be said on the other side. Convalescence has pleasures of its own, which have been classified by an Italian physician with a talent for analysis as follow: There is first of all the negative pleasure from the cessation of physical and mental suffering. Then there is the semi-negative pleasure arising from the satisfying sense of having disappointed the hopes of those to whom our exit from the earthly stage would have been agreeable. A positive pleasure may be obtained from the contemplation of the danger that we have escaped. Other positive pleasures arise from the recollection of the sympathy and affection shown by various persons during our illness, and from the letters, visits, and congratulations of friends and acquaintances during convalescence. Pleasures of still more positive

kind are given by the increased enjoyment of food and drink which returned appetite brings with it, and by the feeling of continuous progress towards the recovery of strength of body and of mind. Last but not least among the positive pleasures of convalescence are the blessed sense of rest so welcome to the toiler, the freedom from anxiety and worry, and the delight of forming plans for change of scene and amusements and occupations likely to complete one's restoration to health. Our *confrère* paints the pleasures of convalescence so alluringly as almost to make one wish to fall ill in order to enjoy them. He discreetly leaves out of sight the fretting at the loss of money, time, and opportunity, the dread of complications and the forebodings as to future mischief, that, for the medical man at least, so often overshadow all the pleasures, negative and positive, of convalescence.—*B. M. Journal*, March 13, 1897.

### Picric Acid and Aristol in the Treatment of Burns.

Dr. Alfred Cookman (*Hahnemannian Monthly*, March) has found these as very efficacious applications in burns. Picric Acid, (which is a product resulting from the action of Nitric Acid upon Carbolie Acid, and consists of fine yellow scales, soluble in water and alcohol,) is best used in the strength of one and half drachms dissolved in three ounces of alcohol, and then diluted in two pints of distilled water. The advantages of Picric Acid are:

1. The severe pain which is so characteristic of these injuries is considerably lessened, this being doubtless due to the carbolie acid, of which it is largely made up, and which is a well-known local anæsthetic.

2. It limits the tendency to suppuration on account of its strong antiseptic properties and the power it possesses of coagulating albuminous discharges. When we remember that the antiseptic carbolie and the coagulating nitric produce picric acid, these properties are readily understood.

3. Healing takes place rapidly under a scab, and the resulting scar is smooth and shows but little tendency to contract.

Picric Acid, according to Dr. Cookman, is best indicated in superficial burns and scalds, with vesication of the skin. He describes the method of its application as follows. "After careful removal of all clothing from the burnt part the wound should be cleaned as thoroughly as possible with the solution of the acid. All blisters should be pricked, and the serum allowed to escape, care being taken not to destroy their overlying epithelium. Sterilized gauze is then

spread over the burnt area and soaked with the lotion. A layer of absorbent cotton is put over the gauze and the dressing held in position by a bandage. This dressing may be left in place three or four days and then gently removed by thoroughly moistening it with the Picric Solution." Three or four such dressings will complete the healing. Picric Acid being a poison, patients must be carefully watched for toxic symptoms which are jaundice, sexual excitement, mental lassitude and gastric derangements.

Aristol, which is a combination of Iodine, Iodide of Potassium and Thymol, "may be used in all varieties of burns from a simple erythema of the skin to a complete charring and destruction of the tissues. In the superficial form it is best used as a powder, while in the deeper burns the following ointment is to be preferred: Aristol, one part; olive oil, two parts; dissolve and add vaseline, eight parts." Dr. Cookman says that cases may happen, necessitating the applications of both.

### A remarkable case.

The *Morning Post* of the 22nd inst. records under the above heading a case with regard to which an inquest was held by Dr. Wynn Westcott. The facts were then stated to have been as follows. The patient's husband went to work at 7-30 A.M., his wife then appearing to be in her usual health. When he came back to breakfast at 9 o'clock he found his wife lying dead on the bed, and the body of a child on the floor. Although there was a woman in the next room no sound was heard during his absence. The husband gave evidence that he had no idea his wife was pregnant and, also, that he did not think she knew it herself. On this the coroner remarked that the case was the most remarkable on record. We may say that the woman's death was due to hæmorrhage, and that the child, who is described as having been fully developed, died from suffocation. The case is an interesting and remarkable one, but is far from being unprecedented. As regards unconsciousness of advanced pregnancy in *unmarried* women, though their statements must obviously be accepted with reserve, it seems to have been established that when intercourse has taken place under such circumstances the occurrence of pregnancy appears to the woman to be impossible and she may naturally and in good faith attribute her symptoms to disease rather than to pregnancy. Coming now to the case of a married woman, the probability of her remaining unconscious of her condition in advanced pregnancy is much less, but there is also generally more

reason for accepting her statement as true. That a married woman may remain ignorant of her condition up to the time of full term labour is established by Dr. Tanner's case, quoted by Guy and Ferrier, of a woman, aged forty-two years, and three years married, who menstruated scantily for five or six months, and then menstruation ceased for nine months. She was taken in labour and delivered of a mature female child by instruments. Both parents are said to have been anxious to have children, but the woman had no idea she was pregnant and could scarcely believe not only the fact of the pregnancy, but that she has been in labour for ten hours. Another case, the Hawkins divorce case, also quoted by Guy and Ferrier, shows that those about the patient, even her husband sleeping with her till within five minutes of her delivery, may remain ignorant of the pregnancy. In that case the Lord Chancellor was convinced that the petitioner (the husband) had remained ignorant of his wife's condition even in the circumstances above stated. Presumably, in the case on which an inquest has just been held, the husband had been sleeping with wife till within an hour or so of her confinement, yet he said he had no idea of her condition, and there seems no reason, such as might have been present in the Hawkins case, for doubting the truth of his statement. The present case is, therefore, extremely interesting; it establishes still more clearly than before the possibility of ignorance of pregnancy existing on the part both of the woman and of her husband up till the very last moment.—*Lancet*, Feb. 27, 1897.

### Relation of the Pancreas to Diabetes Mellitus.

In a paper read before the Hom. Med. Soc. of Pennsylvania (published in *Hahnemannian Monthly*, for Feb.) by Dr. F. Mortimer Lawrence, the experiments and experiences of Lanceroux, Lapierre, Lepine, Hedon and Minkowsky are cited to show that extirpation of the Pancreas in animals is followed by true diabetes mellitus, and in a large number of fatal cases of diabetes in man there was atrophy of the organ. "From this he concludes that a perfectly rational treatment, and a hopeful one offers itself; that having for its object the substitute for the lost pancreatic secretion. This may be accomplished by the preparation of an artificial ferment, or by the extraction from the pancreas of its natural secretion.

The first method was attempted by Prof. Lepine, who prepared an extract from malt. In four cases reported by him, in which this preparation was used, there was distinct improvement; the amount

of sugar excreted daily was greatly diminished, but the effect was only temporary.

Pancreatic extract has been used experimentally by Prof. Torup, of the University of Christiania, in the case of dogs rendered diabetic by extirpation of the pancreas. As the result of the injection of pancreatic extract, sugar absolutely disappeared from the blood, and remained absent during the continuance of the injections. Unfortunately, however, the extract when administered by the mouth was inefficacious, it probably being destroyed in the stomach.

As applied to diabetes in man, a glycerine extract of the pancreas used by Ballistini in two hundred cases caused marked improvement in each instance; and other evidence of an equally encouraging character is accumulating. In these cases the injections were made directly into the veins, a procedure which, while controlling the diabetes, is decidedly dangerous. As yet apparently no other method has been attempted, but, *a priori* it is reasonable to assume that the use of subcutaneous rather than intravenous injections of some modified preparation of this extract might aid in the solution of the problem. Pancreatic grafting has been suggested, but the probability of the early atrophy of the transplanted gland renders such a radical procedure scarcely justifiable.

Though the solution of our problem is by no means in sight, yet the experiments and their results warrant a reasonable expectation that at an early date much will be done to rescue a class of hitherto hopeless sufferers from the realm of the incurable, and we may agree with Prof. Lepine that theoretically the treatment of diabetes mellitus has been discovered. Many details remain to be perfected, but it would seem that the time is near at hand when diabetes, like myxœdema, will have been conquered by our increasing knowledge of the subtle chemistry of the human body."

### **The Necessity of Disinfecting Sputa.**

The following extracts from Dr. A. W. Baily's paper on the subject, read before the Pennsylvania State Medical Society, and published in the *North American Journal of Homœopathy* for March, will show how dangerous sputa of patients are and how they may and ought to be rendered harmless.

Among the diseases which can more readily be contracted through the mucous membrane of the mouth, may be mentioned pertussis, tuberculosis, diphtheria, membranous croup, parotiditis, pneumonia, such eruptive fevers as scarlatina and measles, tonsillitis, pharyngitis, and perhaps some forms of catarrh. All of these produce more or

less disturbance or destruction of the mucous membrane with consequent throwing off of effete material, and it is but reasonable that these unhealthy excretions, with their accompanying bacteria, should infect any healthy individual in whom they find a suitable soil for reproduction and development.

Care, then, should be taken of the sputa of patients suffering from any disease the germ of which may be found in the substance expectorated from the mouth or discharged from the nose. In hospital practice it may not be difficult to secure the necessary disinfection, but in private practice, especially if the patient is not sufficiently ill to be confined to bed, or one room, it is extremely difficult to secure proper disinfection of sputa, and particularly is this the difficulty encountered in cases of tuberculosis and whooping cough. In scarlet fever and diphtheria, or any disease of the nose or pharynx that the physician may call by that much abused term "diphtheritic," usually all the sanitary measures that are necessary or may be suggested, are willingly employed, for the laity have a wholesome dread of these diseases. But in other diseases the willingness to employ faithfully the necessary sanitary precautions, is lacking, and if used at all, it is usually in a half-hearted manner.

In disinfecting it is not sufficient to pour boiling water over tubercular sputa; rags, towels or whatever has received the sputa must be immersed in the water and boiled—a strong bi-chloride of mercury or Labarraque's solution may be used, but I prefer a 10% solution of lysol, as not only is a thorough disinfectant, but also has a tendency to liquefy the sputa and, thus, is more sure of reaching the bacteria in the thick heavy masses that are often discharged by consumptives. It must be remembered that a solution becomes weakened by the addition of sputa, and a sufficient strength must be allowed to overcome this dilution. It is not sufficient that sputa be immediately emptied into the sewer without disinfection, for the bacillus of tuberculosis is long-lived, having been found viable in the body of a consumptive, two years after death.

The secretions of the mouth, as well as the expectorations of consumptives, are dangerous. I have found the bacilli of tuberculosis on the tooth brush of a consumptive. How often do the members of a family keep their tooth brushes in the same holder or tray, and what is easier than that the contaminated one infect the others, and thus, through a simple abrasion of the mucous membrane of the gums or mouth, communicate the contagion to a healthy individual.

It seems to me we cannot too strongly impress upon our patients who may have an infected expectoration the responsibility that rests

upon them to prevent, so far as possible, any extension of their diseases to others.

There are other methods of carrying these contagious secretions and excretions, such as the public drinking cup, and the single cup used at the communion services of a vast majority of our churches; and there are other diseases, such as cancer and syphilis, which produce a virus that will infect a healthy individual if it reaches an abraded surface, but these hardly come under the scope of this paper. If our patients can be taught the responsibility that is resting upon them not to endanger their families or friends, an advance step will be taken in controlling in a rational manner the extension of many diseases that produce infected sputa.

### The Quarantine Superstition.

That the Milroy Lectures should be devoted to a discussion of the question of quarantine and should be productive of such an able demonstration of its inutility as that given by Dr. Collingridge, the medical officer for the Port of London, is peculiarly appropriate in view of the fact that just now, with the terror of the plague before them, so many nations are showing a tendency to throw aside in their panic all the teaching of modern experience and return to their old faith in this discredited shibboleth.

It may be admitted that in its root idea quarantine was founded upon true conceptions of the mode of diffusion of epidemic disease. Those who advocated and attempted to enforce it, founding their endeavours on the practical and perfectly true observation that it is by man that these maladies are carried from place to place, held far more accurate ideas as to the origin of epidemics than those who, ever since their time, have attributed them to influences which, if not supernatural, at least verged on the immaterial.

\* It may even be admitted that infection might be kept at bay by a military *cordon sanitaire* with strict orders to shoot. But that is not quarantine as it is understood to-day, or as it can be practised by any nation; and if we wish to grasp the absurdity of the performance as applied to modern traffic we must recognise that every nation, unless it is willing to go back to barbarism, now depends for very life upon commerce with its neighbours. At all hazards trade must go on, yet directly quarantine ceases to be an absolute barrier to man it ceases to be barrier at all to infection, for one sick man who may get through is as dangerous as a dozen in setting up an epidemic if the conditions in the place where he arrives are favourable for the development of the disease.



The experience which Europe has gained during recent outbreaks of cholera has been ample to show the utter uselessness of quarantine, even when carried out with a rigour which can only be enforced with exceeding difficulty between commercial nations, and cannot be enforced at all by nations which depend for their food on supplies coming from abroad. The whole history of quarantine is but a long series of illustrations of its futility as carried out in practice, and proves it to be, as Sir John Simon so graphically described it, "an elaborate example of leakiness." The hardships inflicted upon individuals, and the enormous losses incurred by traders when quarantine is imposed, lead to all sorts of attempts to evade the restrictions placed in the way of transit from place to place. The result has always been that, where quarantine has been practised, the interests of commerce have trained for their own purpose a band of mercenary officials and an elaborate system of bribery and corruption, until in some countries the system has been practically reduced to one of mere blackmail. Those who paid best got through most easily, and thus, notwithstanding all the expense, annoyance, and loss to which those countries had subjected themselves, the protection afforded them became an absolute fiction.

But, putting its inefficacy on one side, one of the disastrous effects of the quarantine system has been that, alongside of it, there has always grown up a system of deliberate suppression of the truth in regard to the early stages of epidemics; a policy of concealment which has had the most pernicious influence in favouring the spread of epidemics. This is a consequence which appears almost inseparable from the system. The losses caused by quarantine are so vast, and the inconveniences so great, that no municipality will willingly admit the existence of any quarantinable disease until its prevalence is so great as to be entirely undeniable. Again and again has it happened that the dread of the commerce of a town being placed in quarantine has led to the early and manageable stages of an epidemic being hushed up, with result that in the end the outbreak has burst all bounds and become utterly uncontrollable.

The tyranny of quarantine is unendurable if it is carried out with anything approaching efficiency, as an instance of which it is to be noted that in the English Acts passed in the reign of George II power was given "to effectually prohibit commerce for the space of twelve months with any country which is or shall be affected with plague;" and as to its extravagance and expense, outside and beyond the losses entailed by its interference with trade, it is worth recording that during the 123 years between the dates 1720 and 1843 only 25

vessels having plague on board arrived at all the ports of France and Italy, and that for the sake of these few cases these countries were put to the enormous expense of supporting quarantine establishments for all that time. The expense, the loss, the danger to those brought under its provision, the abuses which always attend its enforcements, the encouragement it gives to the concealment of the early stages of epidemics, and finally its well-proved inutility, all of which are well brought out by Dr. Collingridge, ought to be enough to absolutely condemn quarantine in the eyes of all impartial enquirers.—*B. M. Journal*, March 20, 1897.

## CLINICAL RECORD.

### Indian.

#### *A Case of Choleraic Diarrhœa.*

By DR. BEJIN BEHARI MAITRA, M.B.

Feb. 20, 1897. 10 a.m. A Hindu child, aged  $2\frac{1}{2}$  years. Attacked since 8 p.m. last night; had some 19 stools up to now. Since morning the stools are scanty, but watery and some times with lumps of mucus; most of the stools at night were copious, yellow, and containing undigested particles. Pulse good; tongue clean; restlessness; much thirst. Had allopathic treatment in the shape of Bismuth and Hydrarg. cum Creta. To have *Colch.* 6 after each stool.

4 p.m. Had only one stool at 11 a.m. and passed yellow urine in small quantities three times up to now. Gurgling in the right iliac region felt on pressure; tongue warm; tip of the nose cold; pulse good; thirst was less at about 1 p.m., but not so now—as it is now as great as when the disease was in full force; restlessness, is quiet only when fanned; attempts to sleep occasionally. *Arsenic* 30 every 3 hours.

9 p.m. Passed urine three times since last report; no stool; had been much restless and thirsty as before; tendency to sleep just now; tip of nose warm; pulse good. Continue *Ars.*

Feb. 21st. Dozed off and on at night; slept for a short time towards morning; tongue coated yellow; thirst the same; very hungry. *Arsenic* 30 every 4 hours: Barley and a little milk.

10-30 p.m. Since evening has been starting from half drowsiness occasionally, and clenching its hands, as if in convulsion, now and then. *Bell.* 30 every 3 hours.

22nd 11 a.m. Slept soundly after the first dose of medicine; passed urine several times; is very jolly now. Milk and sago. Medicine stopped.

23rd. Doing well.

**Foreign:***Extreme Case of Chorea.*

By E. B. ROCHE, M.R.C.S., L.R.C.P.

On May 2nd, 1892, G. S., a boy about eight years old, was carried by his father into my consulting room, having come from a town 20 miles away. In November, 1891, he had a mild attack of scarlet fever, but made a good recovery and was able to attend school again, continuing attendance till March 4th. On the night of that day when his father took him out of bed about 10 p.m. he cried and said his father had hurt his arm, but he was soon asleep again. He appeared well next morning, but in the afternoon complained of backaché, and after a bath he seemed even worse. Went to bed at 7 p.m., and at 9.45 p.m. woke up with loud screams which continued for an hour, during which time twitchings of the arms, legs, and head were noticed. He afterwards slept well, and on the following morning was well except that these twitchings continued. At 8 p.m. when in bed the screaming recommenced, and half an hour later a medical practitioner saw him and pronounced it chorea, saying that he would not be cured for six weeks at least. Bromide of potassium was the medicine given which quieted the movements, but the boy became steadily weaker. Fellows' Syrup was given, but the appetite failed and he lost strength day by day, becoming in a few weeks as helpless as an infant, having lost all power of speech and use of his legs. It was in this condition he was brought to me on May 2nd, 1892. He was greatly emaciated—his legs useless, muscles wasted, though slightly moved with restless twitches. Shoulders and arms constantly moving—head also, but no facial contortion. Two or three enlarged occipital glands were tender. Appetite very bad. Bowels regular. Can retain urine. No movements during sleep. Cannot speak. Not formerly a nervous child. Cardiac sounds normal. Sleeps very badly.

The child was so weak and ill that I gave a very guarded prognosis, and was very sorry that he had been brought such a distance. Agar. 1x and bell. 1x were ordered alternately every three hours.

May 7th.—There is some improvement in appetite reported, but great restlessness and fear. Agar. 1x, ign. 1x.

May 14th.—Appetite still improving. More sleep. Less twitching the last two days. No improvement in use of legs. Repeat.

May 23rd.—The boy is better in general health, but speech and use of legs remain the same. Repeat.

June 10.—Still improving in general health. Twitching diminishing, but use of legs no better. Repeat.

June 24th.—Is steadily improving. There is a little more power in the legs. Begins to talk. Agaric 1x, nux vom. 1x.

July 11th.—Improvement has steadily continued, and the chorea is almost gone. Can now walk and talk fairly. Repeat.

July 30th.—The boy is getting on well. Gains flesh. Improves in walking and in talking. The medicines were continued for a few weeks, and the boy quite recovered and returned to school.

I gave the agaricus as the medicine on which from past experience I relied for the chorea, having had several cases in which it had done me good service. I have had several cases since this one in which agaricus has been equally useful. In the case recorded above the boy's condition on introduction was going from bad to worse, and was truly pitiful. It was evident that unless some change quickly took place his days were numbered. The only change made in his condition was the use of the medicines recorded.—*Monthly Homœopathic Review*, April 1897.

*A Case of Chronic Ulceration of Stomach, cured by Atropin. Sulph.*

The following case of Dr. Thom, of Fleusburg, has been translated from the *Leipziger Populäre Zeitschrift fuer Hom.*, Dec. 1896, for the *Homœopathic Recorder* (Feb. 1897) from which we transcribe it to our pages :

Mrs. B., of this place, aged 33, of a weakly constitution, consulted me on last ascension day (May 27). Leaning on her husband's arm, her face drawn up with pain at every step, she entered my consulting room. According to the opinion of other physicians, she has been suffering for about 17 years of chronic ulceration of the stomach or its consequences, which are more or less violent at various times. For several weeks past the patient has been again constantly tormented with pains in the stomach, which are aggravated at every meal and at every step, and which at times increase into violent proxysms. The region of the stomach appears to be and is actually distended. She cannot bear the pressure of her clothes. Occasionally she is tormented with mucous retchings. The appetite is almost entirely lacking. The stools are hard, delayed and occasionally bloody. Her general health is very much changed by sleeplessness, lack of appetite, pains, and the constant anxiety about her life and health.

The patient was requested to remain in bed, and a corresponding diet was prescribed. Besides this I gave her 12 powders of *Atropinum sulph.* 5 D. trit., three powders to be taken every day. The effect was truly astounding. The patient, who had for years been taking

medicines almost in vain, appeared again on the fourth day and declared that she felt like a new creature. All the symptoms had improved, the pain and the tormenting retching had gone already in the second night, the sensation of distention and the sensitiveness of the stomach-region to the touch was much less and "hardly troubles her at all now." The patient desired to continue the treatment, so as to make sure of the cure, and therefore asked for additional medicine. I have made inquiries, and find she is still well. *Atropinum sulph.*, therefore, seems to have here effected a real cure, though, according to Hirschel's view, "*It rather serves to prepare the way for the cure by other remedies, as it dulls the excessive irritation and the high degree of sensitiveness (of the nerves of the stomach)*" in suitable cases

## THERAPEUTICS OF CONSTIPATION, DIARRHOEA, DYSENTERY, AND CHOLERA.

### 144. LACTUCA VIROSA.

#### **Constipation :**

1. Constipation for two days, followed by hard and lumpy st., with burning in anus.
2. Insufficient st., st. scanty and dry.
3. Delayed, hard st. St. more seldom, harder than usual.
4. St., which usually occurs regularly in the morning, occurs later, and is harder than usual.
5. St. entirely wanting (4th day), and only occurs after 48 hours, is hard and passed with pressure.
6. After hard st., always some thinner st.

#### **Diarrhoea :**

1. Evacuations of bowels rather promoted than retarded.
2. Easy st., though no D. Sometimes D.
3. Evacuations become smaller (mushy) and more frequent.
4. Two pasty evacuations, contrary to habit.
5. It obliges him to go to st., with a feeling of great weakness and weariness, so that he was unable to sleep ; yawning and accumulation of water in the mouth.
6. Frequent urging to st., followed by hard pressing, and succeeded by bruised pain in anus.

#### **Before St. :**

1. Urging and griping.
2. Feeling of great weakness.

#### **During St. :**

1. Feeling of general weakness and weariness.
2. Hard pressing.
3. Burning of anus.

#### **After St. :**

1. Pressing in anus.

**Rectum and Anus :**

1. Several hæmorrhoidal tumors about anus, with a sensation of twinging in rectum.
2. Transient drawing in anus. Some prickling in anus.

**General Symptoms :**

1. Merry delirium, began about midnight and increased towards morning. Sadness with exalted fancies, so that worst fears and apprehensions are aroused by merest trifles. Very fretful, but depressed mood. Unusual disinclination for work, with ill humor. Thoughts confused. Stupefaction.
2. Pupils dilated. Vision dim.
3. Sickly expression. Face pale, distorted.
4. Tongue coated white; thickly coated with mucus. Bitter taste. Dryness of mouth without thirst. Greater secretion of saliva.
5. Tenacious mucus in throat. Rawness and scaping of throat.
6. Frequent disagreeable eructations which cause a transient feeling of coldness in œsophagus, and leave a lasting bitter taste. Acid acrid eructations. Nausea and vomiting; vomiting of ingesta. Feeling of coldness of stom. Crawling, cold sensation in pit of stom. and epig. with frequent eructations. Tightness in pit of stomach, followed by præcordial anxiety.
7. Hepatic region swollen; tensive pain from pressure. Liver swollen, hard. Distension of abdomen. Feeling of fulness in abd., especially in right side, impeding respiration; relieved by discharge of flatulence upward and downward. Rumbling in abd., especially during and after dinner. Violent cutting colic, with painful rumbling followed by diarrhœa-like, slimy sts.
8. Increased secretion of urine, with or without frequent micturition. Urine yellowish, clear, smelling of violets. Urine brown, hot, causing burning in urethra.
9. Increased sexual desire. Menstruation four days too early, pain in abdomen.
10. Incessant spasmodic cough, which threatens to burst the chest. Dyspnoea and suffocation. Tightness of chest preventing taking a deep breath, or which wakens from sleep.
11. Unusual lightness of the body, especially in the open air. Desire for the open air. Better in every respect in the open air.
12. Irresistible sleepiness. Heavy dreams.

**Remarks :** Whether *LACTUCA* will ever come into use as a remedy for bowel complaints, constipation or diarrhœa, is doubtful. The symptoms of the stools are scarcely characteristic enough to authorise its use. Some of the general symptoms, such as cold feeling in œsophagus and stomach, bursting cough, desire for and general amelioration in the open air (as in *PULSATILLA*), are characteristic and may help in its selection.

## 145. LAUROCERASUS.

### Constipation :

1. St. hard and dry. 2. Complete C. for eight days.
3. St., every two or three days ; after which the abd. continued full, with a feeling as though he had accomplished nothing, with a peevish mood.
4. Hard, difficult st., followed by burning in anus.
5. St. drier and harder.
6. St. at first somewhat hard, afterwards somewhat softer, with colic as from taking cold, and tenesmus in rectum as if more would follow.
7. St. several hours later, but of normal consistency.
8. Frequent, ineffectual desire for st., with passage only of flatus.
9. No st. or urine.

### Diarrhœa :

1. Soft st., with twinging in abd., followed by burning in anus.
2. D., followed by burning in anus. D. at one time with, at another without, tenesmus, both morning and afternoon or evening.
3. D., consisting of *thin greenish mucus*, with contraction in the groin.
4. Involuntary st. and micturition.
5. Urging and soft st. after dinner.
6. Discharge of pasty fœces, preceded by stitch as with an awl in rectum during st.
7. Watery sts. daily for nine days, especially after midnight?

### Aggravation :

1. After dinner.
2. Morning ; evening ; after midnight?

### Before St. :

1. A stitch as with an awl in rectum. 2. Urging.

### During St. :

1. Tenesmus. 2. Stitch as with an awl in rectum.
3. Twinging in abd. Colic.

### After St. :

1. Tenesmus in rectum as if more would follow.
2. Burning in anus.

### Rectum and Anus :

1. Periodic rumbling and gurgling in rectum.
2. Constriction of rectum.
3. Cramp in rectum, extending upward from anus.

### General Symptoms :

1. Sad, joyless, depressed, lachrymose. Vertigo, so that he could scarcely keep erect ; as if head going round and round ; as if every thing were turning in a circle.
2. Pupils dilated, right more than left. Obscuration of vision. Remarkable illusion of vision, every thing seems excessively large.
3. Sunken countenance. Livid, gray-yellow complexion. Spasmodic distortion of features. Puffy face.

4. Tongue coated white ; -with dirty white mucus. Left side of tongue swollen and stiff, painful as if something sticking into it. Tongue dry and raw after eating, with accumulation of saliva in mouth. Back of tongue sticky, with constant watery saliva in forepart of mouth. Mouth dry and coated. Taste flat, insipid ; slimy and pasty. Feverish taste, all day.
5. Able to swallow only when consciousness returns. *Fluids drunk rumble audibly through œsophagus and bowels.* Spasmodic contraction of throat and œsophagus.
6. Loss of appetite (primary effect) ; improved appetite, so that he eats more and with greater relish, and digests better (secondary effect.) Excessive thirst, with dryness in mouth, without heat. Frequent tasteless eructations. Hiccough.
7. Nausea and vomiting. Became nauseated in morning, with a feeling of hunger in stomach, yet food nauseated him. He became faint and qualmish about heart, with anxious warmth as if he had taken an emetic, but could not vomit.
8. Violent pain in stom., soon followed by loss of speech, and death, without vomiting, convulsions, discharges from the bowels, or any external alterations.
9. Hepatic region greatly distended, painful as if suppurating. Almost all food distends abd. Violent colic. Pinching, sticking, pressive, flatulent pain in right side of abd., disappears after emission of flatus, but soon reappears. Flatus accumulates towards perinæum, causing a forcing and pressing outward.
10. Bladder completely paralyzed ; impossible to pass a drop of urine. A little urine only passes after long pressing. Diminished secretion, passes only three times in 24 hours, little at a time. Urine yellow and scanty, a cloud forms in the middle. The urine after standing looks like thick clayey water. A thin pellicle like a spider's web on the urine, in the middle float large flakes, at the bottom a reddish sediment.
11. Respiration slow, moaning, rattling ; sobbing. Frequent, deep breathing. Pulse slow ; pulse and beats of heart scarcely perceptible ; beats followed each other at intervals of two seconds.
12. Extremities paralyzed and cold. The limbs quite numb and insensible.
13. Convulsions, with staring eyes, tightly closed jaws, frothing at mouth, death. Asphyxiated, paralytic condition of whole body. Immediately fell stupidly to the ground, and fainted. Weary and sleepy.

**Remarks :** The toxic activity of LAUROCERASUS no doubt depends upon the HYDROCYANIC ACID which it contains. But whether they both produce identical symptoms, has not been positively ascertained. From the homœopathist's point of view we are inclined to think that they do not. Just as the symptoms of BELLADONNA are not exactly the same as those of ATROPINUM, of OPIUM those of MORPHIA, so we



believe the symptoms of LAUROCERASUS are not likely to be exactly those of HYDROCYANIC ACID. The symptoms of LAUROCERASUS, as presented by our *Materia Medica*, are unfortunately not the pure symptoms of the drug, but have been mixed up with those of the ACID. We have endeavoured to present them as pure as possible with the help of Allen's *Encyclopædia* and the *Cyclopædia of Drug Pathogenesis*.

From these symptoms it would appear that LAURO. primarily produces constipation, and therefore may be useful in that condition when it becomes obstinate and the stools are passed every two or three days, or may not be passed for upwards of a week, and are hard and dry, attended by colic and followed by burning in anus and tenesmus in rectum as if more would follow.

Most of the symptoms of diarrhœa having been reported by Nenning we cannot say how much reliance to place upon them. Clinical test alone can establish their genuineness or otherwise. It may be useful in those extreme stages of diarrhœa when both the stools and urine are involuntary. The burning of the anus follows diarrhœaic as constipated stools. The symptom, fluids drunk rumble audibly through the œsophagus and bowels, is a verified, and therefore a characteristic, symptom.

The drug has been life-saving in some of the worst cases of cholera in which the patients seem as if struck down by lightning and presents a deadly asphyxiated condition, the respiration being slow and sobbing as in HYDROCYANIC ACID, the pulse and heart beats scarcely or not at all perceptible, the extremities cold, numb and insensible as if paralyzed. They may not have had even the characteristic stools of cholera. Such cases are very rare, but do occur in the severest epidemics of the disease, and when they do occur LAURO. is the remedy, and is thus a close analogue of the ACID which is its active ingredient. It will be useful also in similar cases of cholera infantum, as Dr. Bell has well remarked.

## Glennings from Contemporary Literature.

### VITALITY.

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#### IV.—VITAL CHANGES IN NERVE TEXTURES.

The penultimate and ultimate ramifications of nerve-fibres with their oval particles (nuclei) of living matter, and also the relation of these to muscle, vessels, including arterioles, venules, capillaries, and epithelial cells, may be very successfully studied in the thin membrane of the urinary bladder of the young *Hyla Viridis* or green tree frog, or in the membrane of the wing of a young bat. In both these tissues I have been able to trace the nerve fibres in continuity with well-defined, dark-bordered nerve fibres, to fibres of the ultimate network of extreme tenuity, many of these being less than 100000th in. in diameter. At the angle where a delicate fibre joins the network three fibres may often be distinctly discerned, two resulting from the division of a fibre joining another at right angles, which pass in opposite directions, the third running parallel with the subdivisions:

On the arterioles of the little green tree frog ultimate nerve networks may be traced in the substance of and upon the external coat of the vessel as well as amongst the muscular-fibre cells. The contractile tissue of the latter is not connected with the nerve threads or with the oval particles of living matter (the so-called nuclei) of the nerve fibres. Nor are the oval particles of the living matter of any of the muscular fibres directly connected with any ramifications of the nerve fibres. Nor are the last embedded in, or in any way in continuity with, the contractile tissue. Even the very finest of the fibres of the peripheral network consist practically of more than one fibre, or perhaps it would be more accurate to say permit more than one nerve current to traverse them, and possibly in different directions. They exhibit no definite structure when examined under great advantages of preparation and illumination with the highest powers. The material of which they are composed is in the natural state highly transparent, always moist—in fact, contains much water. When, however, they have been long immersed in glycerine or syrup, and are slowly acted upon by weak acetic acid, fatty matters are set free. Indeed, it is in this way only as far as I know that their course and arrangement can be accurately demonstrated and the continuity between the finest fibres and the dark-bordered fibre clearly shown. The fine nerve fibres certainly do not consist of living matter, nor, as far as I have been able to make out, are they composed of any substance nearly allied to living matter. It seems to me that in all cases these fine fibres are current conductors only, formed from the living matter of which the “nuclei” consist, but undoubtedly they belong to the class of *tissues* and must be regarded as formed material incapable of ex-

hibiting any purely vital properties or powers. The so-called axis cylinder is much firmer and harder than any of these fine fibres. It is more resisting, not easily crushed by firm pressure between two plates of glass, and probably retains its integrity as a conductor of nerve currents throughout life. It is firm and of the consistence of fibroid tissue in some cases. It undergoes little structural change during life.

As is well known the character of the "dark-bordered fibre" is given by the thick sheath which envelops the axis cylinder, and which probably protects the current passing along neighbouring axis cylinders from being influenced by currents which at the same time may be traversing adjacent fibres. This medullary sheath is also composed of formed matter and undergoes little change save increase in thickness as the growth of the organism advances.

Not only during development and at an early age, but in the fully-formed nervous system and throughout life, a considerable proportion of living matter is invariably found in connexion with the peripheral as well as in the central nerve organs, but in a given area a much larger proportion exists in the latter. When spread over the surface of a hollow viscus, which is liable to considerable alterations in volume as its contents accumulate or are evacuated, the delicate fibres of the network, the matter of which is always moist so as to possess great mobility without derangement or damage are so arranged that they escape pressure or stretching.

At an early period of development the masses of living matter and in some cases their nuclei are much larger than in the fully-formed state. The fibres at first appear as broad thin bands of extremely delicate tissue so diaphanous as to be distinguished only in well-prepared specimens examined with the greatest care and with excellent illumination.

In all parts of the central and peripheral nervous system, of all organisms and at every period of life, we find the greatest contrast between living and formed matter, between the active living matter that selects, grows, forms, and possesses vital movements, and the formed material which, though it performs very important offices, does not grow or reproduce itself and has no power of selection or construction, between the living matter that exhibits spontaneity—spontaneous action—and matter that may be acted upon but has no powers of self-development and the other remarkable powers by which the state of living matter is distinguished from matter in every other state known.

In papers published in the Philosophical Transactions of the Royal Society and other memoirs, as well as in lectures given between the years 1859 and 1870 and in published works, I have adduced many observations which seem to prove beyond question that the typical nerve apparatus is in all cases a closed circuit formed from the very first by the division and moving away from one another of particles of living matter, the intervening fibre or fibres being formed as the sub-divisions separated. So far as I was able to ascertain, in no case could a single terminal fibre be pointed out, though many observers held this view and I believe many maintain the doctrine of

"nerve-ends" to this day. As development proceeds the circuit composed of continuous fibres and particles of living matter connected with them is so arranged as to form a central and distal portion, but these are always in structural continuity with one another. The distance between the central and distal or peripheral part of the nervous system in man and the higher animals increases until the formation of the organism is complete, the distance between the several oval or stellate particles of living matter becoming greater as development advances.

New fibres are formed in connexion with the central and peripheral portion of the nervous system in the same way by the division of the particles of living matter and the gradual separation of the divisions from one another. Thus are the circuits gradually increased in number, complexity, and extent. In all cases the only active substance by which all these changes are effected and which is instrumental in the production of the nerv-current, is the living matter in connexion with the fibres, the parent masses of which existed at a period of development long anterior to that when fibres were first discerned.

Nerve currents traverse and in different directions the peripheral networks of very fine fibres, and these currents originating in a particle of living matter in any part of the central or peripheral apparatus, may be transmitted to many different and distant parts. These currents, though due to vital action, are not in any sense vital—are not living.—*Lancet*, Aug. 29, 1896. \*

#### V.—VITAL CHANGES IN NERVE TEXTURES—(continued).

The same general arrangement of the peripheral portion of the nervous system to which I have referred obtains in vertebrata and invertebrata, and in all the fibres pursue a similar circuitous course. A nervous system in any part of which the nerve fibres take the most direct and shortest course from central to peripheral distribution, as far as I have been able to ascertain, exists not in nature. In specimens of the naturally very thin tissues in which nerve fibres are abundantly distributed, sufficiently well prepared to be examined under magnifying powers of upwards of a thousand diameters, I have in many instances succeeded in following individual dark-bordered fibres to the points where they pass into the very fine fibres of the peripheral network, and the very fine fibres have been followed to another part of the same network, and I have been able to trace some to dark-bordered nerve fibres which proceed in an opposite direction.

The circuitous and lengthy course which nerve fibres invariably seem to take in passing to their peripheral distribution renders the complete destruction of a considerable area of the sensitive surface an unusual event. If a portion of the network be injured, and even if many fibres thereof have been divided, the circuitous course taken by the fibres prevents any considerable portion of tissue being completely deprived of motion or sensation unless the injury be very extensive. The impaired action in the neighbourhood of the divided fibres is often so slight that it is scarcely perceptible. This fact has to be carefully borne in mind in diagnosing

lesions or disturbance of the central or peripheral part of the nervous system.

There are several points in connexion with the anatomical arrangement of the finest peripheral and central nerve networks which are of service in assisting us to determine the nature of nerve action. In the first place, in connexion with both sets of fine fibres we invariably find small oval or stellate masses of living matter which have been instrumental in the formation of the fibres, and which are also concerned in the increase of the fibres and their repair when injured. Even in adult life, new fine nerve fibres are formed and thus many of the networks rendered more complex. In some cases when nerve fibres have been completely destroyed they may to some extent be replaced by the agency of these particles of living matter. The number of particles in a given area is always greater in situations in which nerve action is most remarkable, and in those cases in which the networks are concentrated in a small space the masses of living matter are in greatly increased proportion. There can be little doubt that a nerve current starting in any part of a peripheral network originates in one or more of these particles of living matter. Indeed, in all nerve organs, peripheral and central, and in every arrangement instrumental in receiving external impressions which are rendered evident to a living organism of any kind and at all periods of life, such particles of living matter are invariably present.

Molecular and chemical changes taking place in particles of living matter of various tissues and fluids at a certain distance from nerves may be influenced by a current as it is conducted along the nearest nerve fibres, and the current in the nerve fibre may be affected by changes in particular particles of living matter contiguous to, but not necessarily in actual contact with, the nerve fibre. In some situations, especially in the outer part of the cerebral convolutions, numberless fibres of excessive tenuity are arranged so as to be touched, and perhaps slightly pressed upon, by particles of living matter as these alter in volume from time to time, and vital movements, which occur sometimes in one part, sometimes in another, may produce very slight pressure upon one or more of the numerous very fine fibres along which nerve currents are passing and, as seems probable, may thus determine the particular nerve action which is to be induced in a distant part.

Although it has not been conclusively proved, numerous facts support the view that many, if not all, nerve actions are due to feeble electrical currents originating in the particles of living matter connected with all central and peripheral nerve organs. Electrical currents, we know, will pass along nerve fibres, while an important influence is, as is well known, produced upon muscular and other tissues situated in the vicinity, though not in actual contact or in structural connexion with the fibre by which the current is conducted.

Vital actions in the matter connected with the nerves and nerve centres determine the chemical and molecular changes which result in the produc-

tion of the "nerve current," the nerve fibres (formed matter) being probably but the moist passive conducting threads.

In special organs in which powerful electrical currents are produced a highly elaborate arrangement, the structure of which is so intricate and the active component anatomical elements so minute that the precise arrangement of the fibres and their relation to the living elements is so difficult to demonstrate that there still remains much to learn. Nor has the exact mode of action of the several parts of the special elements been fully ascertained, although the situation in which the current is established and the course it takes on leaving the seat of its origin have been ascertained. In all cases *living matter* is the active anatomical constituent of every central and peripheral nerve apparatus as well as of the fine nerve fibres which enter and leave each. Since this living matter and all the fine nerve fibres connected with it contain a very large amount of water, without which these would be powerless, probably little is gained by comparing nerve organs with metallic generators and other non-living electrical apparatus. The electric organ developed in certain organisms, in structural arrangement, in its action, and in its development, resembles other nerve organs and as yet not one of these has been imitated by man. The principles of the formation and action of the apparatus of living things are surely absolutely different from the principles of the construction and action of any machine known to us. Neither as yet is there any good reason to suppose that man will ever succeed in constructing any mechanical, electrical, or illuminating apparatus of the composition and mode of action which is characteristic of all formed in living organisms. •

In the records of some of the observations of certain experimenters the behaviour of a piece of a large nerve or of a portion of muscle removed from a frog just after death has been spoken of as "living," and by some these tissues have even been adduced as examples of "living protoplasm." Surely this view cannot be accepted, seeing how many structures are included in a "piece" of nerve or muscle, as well as the fluid which occupies the interstices between the fibres of both tissues. Bloodvessels, blood, connective and other structures, leucocytes, and substances of many kinds are also present, and further remove a piece of nerve and muscle from the category of simple tissues as well as from that of living protoplasm. The conclusions arrived at concerning the nature and action of these tissues can scarcely be accepted as evidence of the general phenomena proceeding in a single nerve and elementary muscular fibre during the life of the organism. We can hardly hope to be able to experiment upon a single elementary muscular fibre, or peripheral or central nerve fibre, and the small particles of living matter belonging to them and which have taken part in their formation. It seems to me that by examining with high powers well-prepared specimens of the delicate tissues referred to, particularly in the case of the little green tree frog, in which very fine nerve fibres, as I have before remarked, may be followed with certainty for a considerable distance, and may be actually traced to dark-bordered nerve fibres or followed to the individual ganglion.

cells in which they originate, we not only gain an exact knowledge of the origin, distribution, and relation of nerve fibres and networks to the textures they influence, but possibly may be enabled to form a correct inference concerning the origin, production, and mode of action of the nerve current. A careful review of the facts thus ascertained, in my opinion, justifies the view I have advanced concerning the probable nature of the nerve current, while some of the conclusions apparently opposed to my own and arrived at by other methods of investigation, if not in every respect in harmony, certainly are not incompatible with them.—*Lancet*, Oct. 17, 1896.

#### VI.—VITAL CHANGES IN NERVE TEXTURES—(*concluded*).

In the very elaborate structures taking part in special sense and in mental action, as well as in various tissues and organs, the substance, the actual matter upon which origin, development, growth, formation, and action depend, is in a living state. This living matter is invariably found to contain a very large proportion of water, a condition which must permit the very free movement of the particles amongst one another. These movements characterise all forms of living matter and are more active when living matter is in a state of great activity. All the remarkable properties of various tissues and at every period of life depend upon the powers of the living matter from which they originated. The living matter alone renders possible increase and growth in early life, maintenance when fully formed, including the replacement of the matter which is used up during action while life lasts, and repair in case of injury. By the death of structureless living matter all further normal action is rendered impossible, though wonderful structural arrangements already produced may be intact, readily demonstrable in very minute details, and capable of being indefinitely preserved in many cases. Of all our organs, those concerned in hearing and sight are probably the most complex and elaborate in their minute structure and most remarkable as regards responsive activity. The many different structures with their different properties present in these organs work together in perfect harmony, but the actual particles engaged are so very minute that their form, arrangement, and relations to one another and to tissues has not yet been satisfactorily demonstrated. Organs of sight and hearing and other sense organs of some classes, though appearing to be mainly composed of rigid, hard, and almost dry textures, perhaps differing widely in structure, agree in this—that the active power is invariably due to the presence of matter in a living state, which is always moist.

All the efforts—and they have been many—to discover analogies between the almost perfect organs of living things and the scarcely less striking pieces of apparatus designed and constructed by man for the transformation of energy have signally failed. That such comparisons should have been attempted by anyone who had even but very imperfectly studied the special structure and arrangement of the apparatus in both cases and was acquainted with the general phenomena occurring during action, to say nothing of their so-called evolution, is, indeed, remarkable, seeing the utter want of

resemblance in appearance, composition, arrangement of parts, origin, and action between the natural organs and the constructed apparatus. Take, for example, the electric organ of a living organism and any form of electric apparatus made by man.

The difficulty of making out the exact arrangement of the various anatomical elements, and their precise action in many of the sense organs, even amongst the lowest organisms, is so great that we are still unable to form an accurate idea of their action, and particularly in the class of insects are the arrangements on a scale so minute that it is not possible to clearly demonstrate the details with the highest magnifying powers. And in these cases in which the general arrangement has been demonstrated, the manner in which, say, in a light-emitting organ, the transformation of energy is effected, has not been determined. But there can be little doubt that the matter actually engaged in effecting the re-arrangement of the constituent elements concerned in the process is in the living state. The power by which all the movements and arrangement of the atoms are directed and regulated is vital power, which power, as I have shown, must be placed in a category by itself, being entirely distinct from all known agencies and forces which operate in the non-living world.

No essential points in common between any living form and any non-living mechanism constructed by man have been pointed out, although some distinguished men of science have stated that in certain cases the manufactured apparatus has been more free from defects and more perfect in its action than the natural structure formed from the structureless living matter according to processes which have been in unceasing operation through countless generations in past ages. To adversely criticise, for instance, some parts of the visual apparatus without taking into consideration the fact that every part concerned in sight has somehow during its formation in darkness adapted itself, or has been adapted, for use under varying conditions of distance, light, colour, and the nature of the surrounding medium is surely neither fair nor reasonable. No artificial optical arrangements yet made exhibit any such power of adaptation. Moreover, the latter are for the most part but aids to ordinary natural vision and are useless in the absence of the eye, as well as destitute of any means of being properly focussed without the aid of the hand acting in conjunction with the eye. Nor could they have been constructed without eye and hand and the peculiar endowments of these organs transmitted through countless generations of human beings. How, then, is it possible to compare the eye of a living organism with an optical instrument which is but an artificial aid to the eye in certain cases, and which is made and adapted to suit the natural organ? Nor must we omit to bear in mind that, unlike any optical instrument, the eye comprehends many complex and delicate structures, which differ somewhat in structure and arrangement in the different types of eye. In every case the formation of these tissues was prepared for, and their development commenced, long before any indication of the characters and action to be ultimately attained could be discovered, each one being



developed according to a predetermined plan or design and prepared for in the absence of light. Nor are the several tissues, which when fully formed work together in harmony, all developed at a uniform rate or in the same periods of time. Are we not, then, compelled to admit the existence of a peculiar governing guiding power—of a nature quite distinct from any agencies or properties known in connexion with the non-living world? Is it conceivable that in consequence of any advance of our knowledge concerning the non-living, the production of these wonderful structures and their relations to one another will be explained by physics or that they will ever be produced artificially? They all grow out of, and are formed from, the structureless, which has been produced by—has descended from, pre-existing structureless, and in this way only.

Considering, then, that in nature there are several kinds of organs designed and constructed to discharge corresponding offices and also adapted to the particular conditions under which their possessors live, each kind having special powers of its own and working under different conditions as regards temperature, pressure, light, and kinds of food,—considering that every peculiarity and every variation in structure is due to inheritance from previously existing organisms, and that corresponding tissues and organs are perfected in very different periods of time, at different temperatures, formed from different kinds of food, retaining their activity in some instances for many years, in others for months, weeks, days, or even hours only, is it not unreasonable, at any rate until we learn more than is yet known concerning the actual phenomena proceeding during their formation, to suggest that the time will come when corresponding organs, or any apparatus performing like functions, will be constructed by man?

The living matter from which, through the agency of its wonderful vital endowments, all tissues proceed seems to be composed of comparatively few elements, the properties of which, so far as investigation has yet gone, afford no explanation or clue to the nature of the powers at work or of the exact way in which the results are attained, much less of the series of changes which occur as the positions of the elements with respect to one another become altered and take up new relations, necessitating the production of the particular substances with their special properties predetermined from the first, often in darkness, or at least under circumstances from which the access of all ordinary light rays is excluded.

No differences in chemical composition or in molecular constitution as yet discovered in any form of living matter will account for the production of any tissues or organs. Nor is it in the least degree probable that differences in vital power, upon which the formation of every form of structure and the discharge of function depend, will ever receive an adequate physical explanation. Nothing is known in connexion with the action of any sense organ or any kind of nerve action which would justify the conclusion that ultimately it will be shown that these are consequent upon any form of change not directed and governed by vital action. Why, for instance, the hard matter of some cuticular structures should be produced by one kind of

living matter, soft mucus by another, bile by a third, nerve current by a fourth, and so on, has not yet been explained. It is certain that these several forms of living matter, which give rise to the production of such different substances and effects, have all been derived by descent from a form of living matter which did not possess the power of any one of them or any of the several formative powers at length manifested by its descendants. Nor can any one of these differences in power be shown to be due to the influence of external agencies or conditions acting upon them. It seems to me that to vital power temporarily associated with the matter of the living particles and capable of directly acting upon their elements and of altering their relations to one another must be attributed the general and special characteristic activities manifested. The wonderful movements and the re-arrangement and alteration of position and relation with respect to one another of the component elements of every known kind of living matter must, I think, be referred to the exercise of this power alone. And though it may be said that we only assume the existence of vital power in causing the changes which ensue in the matter supposed to be under its sway, it is certain that no phenomena at all comparable with those which characterise every particle of matter that lives, whether it be high or low, simple or complex, have been manifested by any form or state of matter which is not living.

All attempts to show that life, vitality, in any living particle, is capable under any circumstances of being converted into, or made to take the form of, heat, light, electricity, or other form or mode of motion have so far signally failed. Indeed, the manifestation of various forms or modes of energy in living things appears to be a direct result of a certain rearrangement of the atoms of living matter, the rearrangement being effected by the operation of vital power upon the material particles with which it is temporarily associated. The change in position and relation of the atoms is no doubt accompanied, though not caused, by chemical action, and in many cases by the evolution of heat, light, or electricity. In the present state of our knowledge, as it seems to me, this is the nearest approach to an explanation that, in strict accord with known facts and reason, can be advanced, and, indeed, the only way in which the rearrangement of the particles, which undoubtedly takes place, can be accounted for.

I submit, then, that so far all the facts adduced and the argument founded upon them establish the conclusion that the living matter which is directly concerned in the development and formation of the most complex and highest organism, organ, or tissue, be it vegetable or animal—man, an eye or a brain cell—exhibits no special characteristic which would enable us to decide what particular organism, organ, or tissue was about to be produced, or to distinguish it from living matter from which some low and comparatively simple organism, organ, or tissue of the most passive and unchanging kind would be evolved. The results of the influence of life power on matter cannot, in fact, be foreseen. The results may be observed and the resulting structures subjected to investigation, but the power itself

is not demonstrable and cannot be isolated. 'It stands by itself among natural agencies. Its origin is unknown and the means by which it is communicated to non-living particles undiscovered and perhaps undiscoverable. That vital power is transferred without loss is quite certain. Nothing is added to the weight of the matter when it becomes living—nothing taken from it when it ceases to live. Vital power in many cases undergoes certain modification as regards its special characters, probably at a time when it is least active and perhaps at a time when it appears to be in a dormant state, the modification in power being evidenced in the departure from the characters, properties, and action of the tissues and organs formed.

I claim, then, vital power—vitality—as the agency upon which the composition, characters, minute structure, and action of all tissues and organs in every living organism directly depend. In the absence of vital power not a structure characteristic of any living form in nature could have existed. It is the wonderful operation of vital power which distinguishes all living from all non-living. Vital power effects the separation from one another of elements in combination in the various substances which constitute the pabulum of the living, rearranges these elements, and determines their new position, so that new combinations resulting in the formation of particular compounds are occasioned. Such analytical and synthetical operations are of a special kind and are always proceeding, slowly or quickly, in every particle that lives, and many of the products as regards properties, composition and action—predetermined, as it were foreseen—are inimitable and obtainable only from organisms in a living state or that have lived.

These general conclusions will be further strengthened by observations which will be advanced in the next communication, "on the Interstitial Circulation of Living Organisms in Health and Disease."—*Lancet*, Jan. 23, 1897.

## THE BACTERIA WHICH WE BREATHE, EAT, AND DRINK.

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The surface of the earth is inhabited by bacteria; wherever there is dead organic matter, wherever there are human or animal excreta, wherever decomposition is going on, in stagnating or in flowing water, within our houses and without, bacteria collect. They are so widely distributed that practically everywhere we are surrounded by minute vegetable cells. From the bacteriological standpoint we live amongst decomposing matter. Without bacteria there is no decomposition or putrefaction; they reduce the organic matter to "dust" and with the atomised matter they are again carried away by air or water. Dust is laden with bacteria, and since a great part of dust is derived from decomposing matter, it follows that, although we do not realise it, we are living in an atmosphere of decomposition.

The air which we breathe, therefore, contains, bacteria. These vary in amount with certain conditions. If the air is calm their number diminishes, but if there is wind or draught, they may be present in enormous numbers. Again, in the open country air there are, other things being equal, considerably less micro-organisms than in the dusty street of London. Thus there is an extraordinary difference between the air in Oxford Street and on Wandsworth Common.

The air may be roughly tested by coating sterile plates of glass with gelatine, and exposing them for a given time in the locality which we wish to examine. The bacteria will fall on the surface of the gelatine, and on incubation at a suitable temperature they will develop into visible colonies which can be readily counted. The number of colonies is a fair, though not an absolute, index of the bacterial purity or impurity of the air. The more colonies we find on the surface of the gelatine, the more bacteria, of course, the air must have contained. A plate exposed in Oxford Street would be covered with colonies, while a plate exposed on Wandsworth Common would show only a few. This is, of course, only a rough-and-ready method which cannot be used for accurate work, but, nevertheless, it gives us good comparative results.

The lantern slides exhibited on the screen demonstrate to you that the air which we breathe always contains micro-organisms, and that therefore we are always inhaling bacteria. Many organisms are incapable of growing at the temperature of the body; they require a lower temperature. Such organisms, we may assume, cannot thrive in the body of the warm-blooded animal, and are therefore, probably, of little importance so far as we are concerned. Keeping this in view, I have always incubated my plates coated with agar-agar at the body temperature, in order to gain information as to the approximate number of organisms which are likely to find access to our respiratory tract, and which have a chance of thriving there. I have not attempted to separate aerobic organisms from the

anaerobic ones, *i.e.* those which can grow in the presence of oxygen from those which cannot. All I wish to show is that under ordinary conditions of life we must breathe an air which contains bacteria, sometimes many bacteria. These plates do not tell us how many bacteria we inhale in a given time; they simply tell us that the air which we breathe is not sterile.

The bacterial flora of air varies considerably. The lad shopping in Oxford Street will inhale more bacteria than the boy who runs about on Wandsworth Common.

We all expect to find that the air in a railway carriage of the Underground Railway is full of bacteria; but, although very rich in bacteria, it is not so impure as might have been anticipated.

I have prepared a number of plates from the air in my laboratory, exposing them from one to five minutes. Some of them are very full of colonies, others less; and this depends on the number of students that have been at work during that time. The more students the more dust, and there the more bacteria.

Wherever many people are congregated the air becomes laden with dust and bacteria. Thus plates exposed in the Surgery of one of our largest general hospitals for three to five minutes are covered with numerous colonies. Compare this with the air in the quadrangle of the same hospital, and you will see the effect of confinement and of crowding together. In the former case we find numerous colonies, while in the latter case—*i.e.* in the quadrangle—the air is much freer from micro-organisms. This is also shown by plates taken from the Apothecary's Shop of the same hospital during a time when the patients collect to obtain their medicines; here the air is laden with bacteria.

If you desire a further example, you will find it in plates prepared in the Smithfield meat-market. After a minute's exposure already they are covered with colonies: and we cannot wonder at this, if we remember how active the life there is, and how much organic matter is carried about.

In foggy or misty weather, when the air is quiet, the number of organisms is greatly reduced. It requires, therefore, but little reflection to recognise that, under ordinary conditions the air which we breathe contains numerous bacteria: we live in a world which is not sterile, and, therefore, unless there exist special preventive measures, those body cavities which are in direct communication with the outer world must also contain bacteria. The mouth, the alimentary and respiratory tracts, and pores of our skin are all in direct communication with space outside us, in fact, from the bacteriological point of view they represent simply the outer world.

We may, therefore, expect that the organisms which exist outside, in part at least also find their way into these body spaces or cavities, even if they were not carried into the mouth with our food, or into the nose by the process of respiration. We cannot possibly prevent the bacteria from entering the mouth, even if we refused any but sterilised food. This

is an important point to remember, because it proves the impossibility of excluding bacteria from the digestive tract. Saliva always contains them, often in great numbers; and as saliva is constantly swallowed, they must find their way into the stomach. But to return to the bacteria which we breathe. The air passages, *i.e.* the nose, larynx, trachea, bronchi, and their ramifications, and the alveoli or air spaces of the lungs contain bacteria. In normal respiration the inspired air enters the nose, but the anatomical structure of the latter is such as to act as a bacterial filter, imperfect no doubt, but still capable of retaining from three-fourths to four-fifths of the bacteria of the inspired air. Therefore, although large numbers of bacteria find their way into the nasal cavities, the true mucous membrane of the nose is surprisingly poor in bacteria; and this to some extent is due to filtration, and to the fact that healthy nasal mucus possesses considerable bactericidal or disinfecting power. If, however, the nasal mucous membrane is diseased, and it is frequently diseased in this country, large numbers of organisms may be found. The nose, therefore, is an important bacterial filter; and it follows that breathing through the nose is the best method which the body possesses for the purification of the air which we breathe. When we are forced to breathe through the mouth, bacteria are readily inhaled into the larynx. The latter, as well as the trachea, bronchi, and lungs in man always contain bacteria, because the nose is a very imperfect filter which often gets out of order, and also because the respiratory tract is in direct communication with the outer world. It is stated that the trachea, bronchi, and lungs of animals (rabbits) are almost free from bacteria; it is certainly not so in man.

The air which we breathe contains both organisms which are capable of producing disease, and organisms which are harmless. The latter are far more numerous; still pathogenic organisms, *i.e.* disease-producing organisms do float about in the air, and may then be inhaled. The organisms which we find in the nose, mouth, larynx, and lung include some undoubtedly pathogenic forms, as for instance the micro-organisms of pneumouia, suppuration, &c. These exist in space around us, and therefore, unless they are destroyed in the respiratory passages, they must find their way into the cavities of the body which are in direct communication with the outer world; and thus we see that virulent organisms may enter the body and remain there without causing any lesions, for although we frequently inhale pathogenic organisms we do not inhale the diseases which they are capable of producing. The bacteria enter the body, but not its tissues; they thrive in the secretions and on the mucous membranes lining the various cavities of the body. But that only means that they are practically still outside the body proper. It is a common error to say that because an organism is found inside some space or cavity of the human body, that therefore it lives in the tissues or in the body. As I said before, all the cavities and spaces in direct communication with the outer world are the outer world, and we may expect in them the same organisms as occur in the outer world. The resistance of our tissues in

health, and the absence of predisposing influences prevent the pathogenic organisms present from doing more than leading a harmless or saprophytic existence; but if for some reason or another they actually enter or irritate the tissues, the most serious forms of disease may appear, as for instance pneumonia. Many of us carry the organism of this disease about in our mouths, bronchioles or alveoli, although we remain perfectly healthy; pneumonia, however, frequently appears after a drenching or a chill. The coccus of pneumonia, which lay harmlessly on the mucous membrane, now assumes a virulent character, invades the lung tissues, and in some cases even the circulation. The bacillus of tuberculosis in rare cases has also been found in the nasal mucous membrane of individuals attending on consumptives; it did, however, no harm so long as it was outside the tissues on the mucous membrane, *i.e.* in the outer world whence it had come.

Anyhow, we recognise that since, under ordinary conditions, we live amongst bacteria and decomposing matter, we must be inhaling large numbers of bacteria into our nose, mouth, larynx, trachea, bronchi and lungs; and that since pathogenic bacteria from time to time occur in dust, these also must find their way into those spaces and tracts. But we need not feel alarmed and insist on a sterile supply of air, because the danger of aerial infection is but slight, and because the survivors amongst the inhaled micro-organisms will remain harmless, unless the system is weakened or rudely disturbed by some interference. It is, however, well to remember that our respiratory passages may, and generally, perhaps, do contain numerous germs capable of producing disease and death, and that these germs may lie dormant there for a long time, ready under provocation to do their worst.

There is one other organism I wish to single out, because I shall have much to say about it subsequently, that is the *Bacterium coli commune*. This organism I have always found in saliva and in sputum, on the tonsils, and on the pharynx. It is an ubiquitous organism outside the human body, and therefore occurs in the body spaces and, especially, in the intestines which are continuous with the outer world; and it would be surprising if it did not.

We may here conveniently consider the flora of the mouth and pharynx. Whatever micro-organisms are present in the mouth must have got there from the air or the food. At a particular moment there may be an enormous number of organisms present, but many of them are merely temporary visitors; they either die because they do not find suitable conditions, or they are passed on into the stomach and intestines. The mouth is not guarded by a filter like the nose, but to a slight extent at least the saliva possesses disinfectant properties. The oral cavity is, however, never free from microbes, and some of them belong to highly pathogenic species, as *e.g.* the coccus of pneumonia, several forms of pus producing micro-organisms; and diphtheria bacillus has occasionally been detected in the mouth or on the tonsils without there having been any history of direct contact with diphtheria cases.

These organisms may lead a saprophytic existence, and may remain harmless for a long time, till for some reason or another they are awakened to a life of virulent activity. Mr. Stephens and I have frequently found bacilli resembling the diphtheria bacillus in the dust, and though some of them are certainly not true diphtheria bacilli, others must be regarded with suspicion. Personally, after prolonged observations which I have carried on with Mr. Stephens at St. Bartholomew's Hospital, I incline towards the view that the diphtheria bacillus is more widely distributed in space than is generally believed, and that in a harmless or saprophytic condition it may be inhaled and fix itself upon the tonsils.

We have found in the air and on the surface of the body several varieties of bacilli, morphologically identical with the diphtheria bacillus. These are generally called pseudo-diphtheria bacilli. They are widely distributed. Some of them are so different in their biological characters from the diphtheria bacillus that they may be put on one side; others, however, so closely resemble it that they cannot be treated with the same contempt. Some observers feel a peculiar satisfaction in hiding themselves behind the security of the pseudo-diphtheria bacillus, which is an undefined quantity, including many varieties of forms. No one nowadays ventures to define the cholera germ; there are too many varieties of it. We believe that caution is advisable in the diagnosis of the diphtheria bacillus. We have come to the conclusion that when a bacillus is morphologically identical in appearance with the diphtheria bacillus, and in its biological characters closely resembles the conventional type of the diphtheria bacillus, he must be a bold man who ventures to say off-hand that this bacillus is or is not a diphtheria bacillus. We know of no test-tube reaction or animal experiment which will always decide it. We believe that the diphtheria bacillus is found in nature as a saprophyte, and that under special conditions it becomes pathogenic, and then diphtheria results. We see once more, that in the mouth also pathogenic organisms may enjoy a harmless or non-pathogenic existence, until conditions arise which alter their character and render them virulent.

We shall now pass on to a consideration of the bacteria which we eat and drink.

That severe gastric and enteric lesions and derangements, often accompanied by the most severe symptoms, and occasionally followed even by death, are only too frequently the result of consuming unsound food, cannot be questioned; and from the hygienic standpoint we must insist upon the sale of proper and sound food, and upon a careful preparation of food. "Food poisoning" may be due:—

- (1) To irritation, the food being good in itself, but indigestible or altogether unsuitable.
- (2) To bacteria infection; or
- (3) To intoxication with poisons elaborated in the food.
- (4) To intoxication by poisons purposely or accidentally added to the food.



Unfortunately, if we except the last cause of "food-poisoning," we have no sure tests which we can readily apply to gain information whether disease lurks in a tempting dish. We generally raise the cry of "death in the pot" after the mischief is done, and as a rule we do not get much further. In a free and easy manner the analyst and the medical officer of health speak of ptomaines and toxins which they generally fail to detect, or it is stated that an appallingly large number microbes have been found in the fatal dish—and this is often considered sufficient evidence to explain the distressing symptoms which ensued.

The first point which I wish to make clear—or you may say to obscure—is the value of the quantitative bacteriological examination in cases of food-poisoning.

In many reports we read that an unusually large number of bacteria were found, and that amongst these were various forms of the *Bacterium coli commune* or of *Proteus*. Now all such reports are somewhat unsatisfactory, unless we also know more of the circumstances under which the food was prepared or preserved.

First, as to numbers: what do they signify? Because we find 500,000 to a million, or even innumerable micro-organisms in a c.c. of fluid or in a minute particle of solid, can we, therefore, always say, in the absence of other evidence, that as food, such articles are unsound, and that such numbers account for the symptoms observed? I think not, because I can quote figures which prove that persons who never suffer or have suffered from food-poisoning habitually ingest enormous quantities of bacteria without any evil accruing therefrom.

(1) *Milk* is constantly consumed by many individuals without harm. Now the best samples of milk that I ever obtained in London contained 250,000 micro-organisms per c.c.; generally we find 1 to 2½ millions per c.c., and if we let it stand at the ordinary temperature of the room these numbers may increase 20 to 1000-fold. Yet such milk is generally harmless, and we are not justified in condemning it on account of the large number of germs present. It is impossible to obtain milk free from bacteria, even if the cows were to be milked in a modern operating theatre, because the ducts in the teats always contain micro-organisms, which are washed into vessels and there quickly multiply, and during the necessary exposure which must follow, more organisms find access to the milk. Mr. Parfitt has recently made some careful examinations of the bacteria present in London milk in my laboratory, and has found that 1 c.c. of milk contained 1,250,000 microbes, of which 303,000 were capable of growing at the temperature of the human body. I would, therefore, not undertake to condemn milk unconditionally, because 1 c.c. of it contained 500,000 to one million germs, and would hesitate to do so if it contained two, or even twenty, millions. Numbers here are not a true criterion; hundreds and thousands of people consume milk teeming with bacteria. I do not say that there is no danger in milk, for we know that tuberculosis, enteritis, diphtheria, and scarlet or typhoid fever have often been traced

to milk ; nor do I mean to say that the process of collecting and dealing with the milk could not be improved. These points are beyond our present argument. All I wish to show is that most of us consume habitually a large number of organisms without feeling any the worse for it. I do not recommend a bacterial diet, but I merely state the fact that we consume an enormous quantity of bacteria.

I know very well that milk is a frequent cause of enteritis in children, especially during the hot summer months, and this affection, which destroys the lives of many infants, is undoubtedly frequently due to bacteria present in the milk. Prof. Flügge's experiments have practically settled this point, and we must agree that under certain conditions a considerable accumulation of bacteria in the alimentary tract can hardly be a matter of indifference. It is, however, difficult to say what the limit is, beyond which the ingestion of micro-organisms becomes dangerous ; and again it is possible, nay probable, that in many cases, for some reason or another, conditions arise which allow organisms existing in the gut, such as the *B. coli*, to proliferate at a great rate, and thus to produce most serious symptoms and intoxications. It is right and proper to avoid all dangers and risks by collecting and preparing food properly, by cooking it sufficiently, and by consuming no food that has been kept too long ; but it is equally right and proper to remember that some articles of food are not only consumed, but also relished, which are known to contain enormous numbers of micro-organisms. We cannot make our lives miserable by refusing all but sterilised food ; and I wish to point out to you that some articles of food which we particularly enjoy are teeming with bacteria, and for all that are not to be condemned. The question is, how did the organisms find their way into the food, *i.e.* what are the causes and circumstances of the contamination.

We are everywhere surrounded by danger, so far as bacterial infections are concerned. A slight scratch or a fall on the ground may be the cause of lock-jaw or tetanus. Are we therefore, to give up all forms of exercise, such as football and bicycling ? The friendly services of the bacteria outweigh the injuries which they inflict upon us, and I believe that just as in the world around us they do us many a good turn, so also in the world within us do they assist us. Possibly we could get on without them, but we do not know yet whether we could get on better without them than with them. Let us fight our foes, such as the organisms of typhoid fever and cholera ; but this can be done with coolness and common-sense, and insistence on cleanliness and ordinary precaution.

(2) All cold meat contains numbers of organisms enough to frighten timid people. These are most numerous on the outside of the meat, but the interior is by no means free from them. I have frequently examined cold meat, and a single platinum loop often carries away innumerable germs from the superficial parts, and yet, as a rule, no ill-results ensue from the consumption of cold meat as ordinarily prepared. It is the cus-

tem to declare with diastase the legions of micro-organisms found in potted meat or in cold meat-pies, suspected as the cause of food-poisoning, and yet we find that potted meat and sandwiches bought at the most fashionable restaurants of London possess a flora which almost rivals the most virulent potted meat or veal-pie, and which, if numbers were an absolute test, should prostrate any one partaking of them. An error which is often committed, is that articles of food which bear the stamp of respectability, and which the better class consume, are not examined, so that we remain ignorant as to the numbers of organisms ingested with food acknowledged to be sound. I have recently examined the sandwiches offered for sale at one of the best-known London restaurants, and I find that less than a millionth part of a sandwich examined generally contained innumerable micro-organisms. I have myself eaten four to six sandwiches at that restaurant every day for the last twelve months or so that I spent in town, and live to tell the tale, nor have I ever heard of any one coming to grief from the effects of those sandwiches. Similarly potted meat, bought at the best sources, contains an extremely large number of micro-organisms, both aerobic and anaerobic.

(3) If we fix our attention upon the food of those who care for "good things," we find that *oysters* and cold *game* are also thoroughly impregnated with bacteria, yet, in spite of a few accidents, and spite of the aspersions cast upon oysters, no one, I think, would venture to declare these articles to be invariably unsound food. Oysters are consumed by thousands of persons without bad effects, and they are often given to debilitated patients. We cannot, therefore, appeal to numbers as an absolute standard of good and bad food. However, we must insist upon this, that the oysters be cultivated and kept under conditions which exclude sewage contamination and filth. The layings should not be subjected to anything approaching risk of infection. Sewage always contains large numbers of *B. coli commune*; therefore, oysters, known to be fattened in sewage-polluted beds, which contain numerous *B. coli commune*, cannot possibly be said to be free from sewage contamination, if they have been properly and ably examined. If we are aware that direct contamination with human excreta has been avoided, we need not be alarmed at the presence of what might appear to be a large number of bacteria in oysters, so long as the latter are fresh. No one, after reading Dr. Thorne Thorne's masterly introduction to the recent Local Government Board Report on oyster culture in relation to disease, can doubt that the oyster may be the cause of disease, and that this danger can be obviated by removing the chances of sewage pollution. The chief danger arises from the possible presence of the typhoid bacillus, or the vibrio of Asiatic cholera. Their presence we must fear, but to restore a little confidence in the abused mollusc, I will quote some of Dr. Thorne Thorne's own words: "Only a few of the layings, fattening beds, or storage ponds round our coast can be regarded as theoretically free from every possible chance of sewage

pollution.\* But, as regards the majority of them, any such polluting matter becomes mixed with so vast a bulk of water that it is difficult to see how layings can be subjected to anything approaching substantial risk or deleterious influence." Still, as the reports show, there are exceptions to this comforting rule, and this should not be.

(4) What I have said about bacteria in normal food will become still clearer if I quote a few figures obtained by Mr. Stephens, when working in my laboratory on the bacteriology of *ice creams*. It has become the custom of using strong expressions against the ice creams sold by the Italian street vendor. It is indeed disgusting to see the same grimy glass used by a row of dirty boys, it being periodically washed in filthy water and wiped with an equally filthy rag; but in many quarters these ice creams have been condemned on account of their rich flora. Now I may remind ladies fond of ices, that the ices bought at the fashionable confectioners in London, as a rule contain as many bacteria as, if not a larger number than, the Italian's ice creams, on which they would look with disgust, if they regard them at all.

In several samples of street-ices Mr. Stephens found from 2 to 5 millions of bacteria per c.c., while strawberry ice creams bought at well-known West End confectioners at times contained from 10 to 14 million germs per c.c. The average number for the two kinds of ices was 7 millions per c.c.

If street-ices are to be condemned therefore—and there are many reasons why they must be condemned—we are not justified in condemning them on account of the number of bacteria contained in them, for in this respect they are no worse than the best ices sold in the West End of London, which afford great and generally harmless pleasure to many; but we must condemn them on account of the circumstances under which the bacteria have found their way into the Italian ice creams.

I could multiply instances to prove that most of us consume enormous numbers of bacteria. I have examined cakes and many other delicacies, and must come to the conclusion that the better-class people ingest as many, if not more, bacteria than those who from poverty are tempted to procure cheap and stale food. I must, however, content myself with the above statements, which prove the difficulty of deciding from a purely quantitative bacteriological examination of food articles whether, other things being absent, we are justified to express categorical opinion as to their quality, safety, or nutrient value. In examining drinking water, the number of bacteria present in 1 c.c. is no doubt a measure of the adequacy of the filters, but one may wonder why 100 germs per c.c. should generally be considered the maximum number of bacteria which good potable water is allowed to contain. This or any other number absolutely measures the quality of the filter, but not the safety of the water.

We must now pass on to the second point, i.e. the species of micro-organisms present in sound food. Here again we find the result of bacteriologi-

cal examination often unsatisfactory. We have but few, if any, organisms, so far as our present knowledge reaches, which are absolutely characteristic of unsound food, and which are invariably associated with it. In ordinary food I have always found numerous pathogenic or suspected organisms. The *B. coli commune*, *Proteus* forms, *staphylococci*, *streptococci*, organisms resembling the diphtheria bacillus, they may all be found, in food which is considered to be above suspicion as well as in food which, by process of exclusion, reasonably or unreasonably has laid itself open to doubt as to its integrity. I have frequently examined meat, suspected and unsuspected, and feel convinced of this, that in most cases from a qualitative examination we can only proceed to argue with caution, unless we succeed in separating the bacillus of tuberculosis, of anthrax, or of typhoid fever, the vibrio of Asiatic cholera, or probably one or other bacillus of enteritis. Various forms of *B. coli commune* and various forms of *Proteus* are common in articles of food, and were separated often in numbers in many of the sandwiches and other food articles examined. When they have been found in suspected articles in large numbers, they have frequently been considered as being adequately confirmatory of the suspicions aroused by the circumstances of the case. They are certainly evidence of staleness, and may become condemnatory evidence. For instance, water rich in *B. coli* derived from a river into which sewage flows, or into which excreta are drained, must be condemned, because this is clear evidence of sewage or faecal contamination and of incomplete filtration. It has been thought that food containing large numbers of the *Proteus vulgaris* cannot be eaten with impunity. That is true in some and it may be in many cases, and is a good *post hoc* argument, but it cannot be made an absolute standard. In many sandwiches examined I have found large numbers of *Proteus*, and yet they proved harmless. This organism *per se* does not justify a verdict against the food. In milk the *Proteus* is extremely common, in most samples, at least, examined and consumed by myself without bad results. Now a writer in the *British Medical Journal* of 1895, having made the same observation, argues thus:—Forms of *Proteus* are found in putrefying organic matter of all descriptions, and their distribution is wide. Their presence in milk must mean one of two things, either direct contamination with putrefying matter, or needless exposure to an atmosphere containing particles of decomposing matter." Thus this observer writes. *Proteus* is so common in food, because it is found everywhere in dust, and bacteriologically speaking all dust-laden air must contain particles of decomposing matter; hence the presence of *Proteus* may not mean more than ordinary exposure, not even needless exposure. It is difficult to see how one is to avoid the *Proteus*. Matter decomposes because the putrefying germs are present everywhere in dust, and putrefied matter rising as dust increases the stock of such germs in the air; the vicious circle is at once established. It is difficult to say what number of *Proteus* bacilli in an otherwise sound article of food would signify danger, and the

value of such statement depends on the experience of the observer and on the circumstances of the case. But as far as mere qualitative evidence goes, viewed from the bacteriological standpoint, we all live amongst particles of decomposing matter. Should we get almost pure cultures of *Proteus* or *B. coli* and these forms present in large numbers, matters are easy enough—such food must be condemned.

Let us now turn to the *Bacterium coli*. Water has been condemned because it contained this organism in small or large numbers, and the writer quoted above asserted that "the colon bacillus, if found in potable water, is usually taken as diagnostic of sewage contamination," and "its frequent presence in milk he derives from the soiled cow and its surroundings, and he regards it as *par excellence* diagnostic of faecal contamination." Many writers believe that water which contains this microbe at all, in however small numbers, has in all probability been polluted with excremental matter, and they regard this bacillus by itself as typical and specific of faecal matter.

Now I consider that the *B. coli*, in its various forms, is a rather abused organism. With Mr. Stephens I have worked at this organism since the beginning of 1894, and have separated it wherever I came across it. It is our experience that it occurs in some form or another almost anywhere and everywhere: in the air, in the soil, in the water, in dust, of course in varying and variable quantities. We have found it in the secretions of the body where direct intestinal contamination could be excluded. It occurs in normal saliva, in expectoration, whether of health or disease, not occasionally, but practically always. In diphtheriatic membranes, in abscesses, in the skin—everywhere it is. Fluids and solids exposed to air contain it; nothing can avoid it. On the surface of meat, even frozen mutton, on bread, fruit—everywhere it may be found. A few hours after birth it has been found in the intestinal tract of infants. We, therefore, have come to the conclusion that the *B. coli* is present in the intestines, because it is ubiquitous outside the animal body, and not that its presence anywhere and in any number outside the digestive tract necessarily signifies direct filth contamination. No doubt animal excreta assist in keeping up its supply, but it seems to me that simply because this bacterium occurs somewhere or other, to speak of direct filth contamination without other existing evidence is not quite logical. Of course it may be said that since filth forms a great source of this bacterium, and since the alimentary tracts, so to speak, envelops the earth, that therefore the presence of the *B. coli commune* does prove such contamination; but then it comes to this, that from a bacteriological standpoint we live and breathe in decomposing matter. I therefore doubt whether we have any right to condemn apparently sound water or food which contains the *B. coli commune* on the assumption that it has been soiled unless we have real or circumstantial evidence of such soiling. If water contains a large number of *B. coli commune*, we may have to condemn it on the score of

being insufficiently filtered if the source of such drinking water contains the *B. coli commune*; but in the absence of other evidence we cannot always do that. The bacillus fluorescence is almost constantly found wherever the *B. coli* occurs, yet no one would regard its presence in water, even in large numbers, as absolute evidence of direct filth contamination. Yet the above observer concluded that the presence of the bacillus fluorescence in milk may be taken as presumptive evidence of added water: this is a *reductio ad absurdum*. Time forbid to say any more about the *B. coli commune*, and I am not here to discuss it.

I know of few organisms which are so indifferent with regard to the medium on or in which they are grown; aerobiosis or anaerobiosis, high or low temperatures, acid or alkaline reactions, light or darkness do not affect the *Bacteria coli* group to any marked degree. At the same time they are chemically extremely active organisms, and therefore their normal presence in the alimentary tract can hardly be of physiological indifference to us and animals. I incline to the belief that their influence in disease is secondary rather than primary, but I shall not discuss this point here.

Now, when we are dealing with organisms which are capable of growing and acting on dead as well as on living tissues, which are furthermore capable of great and varied chemical activity, and also resist external influences extremely well, and readily vary under such influences, it seems to me that an important point may be raised. If there be anything in adaptation, then I think the animal body must have adapted itself as much to the *Bacteria coli* group, as the latter, no doubt, has adapted itself to the animal body. The two organisms, viz. the *Bacterium coli* and the animal body must be well balanced; if the balance is disturbed, one of them must go down. Symbiosis, whether obligatory or facultative, is a problem which has hardly been touched upon as existing between man and low forms of germs. We know that plants make use of micro-organisms, and that vegetation is immensely assisted by nitrifying organisms. Under absolutely sterile conditions of growth a plant thrives badly. Experiments and observations are needed to show how animals would thrive on sterile food and in sterile surroundings. Pasteur, in 1885, expressed the opinion that they would do badly under such conditions. Nuttall and Thierfelder have shown that a guinea-pig brought aseptically into this world may be kept in good condition under sterile surroundings for 8 to 14 days, and from their experiments they argue that the presence of bacteria in the intestinal tract is not necessary to life. The obvious criticism is that a week or two for such experiments is too short a period, and that it would require observations carried on for months before it could be definitely stated whether or no bacteria are necessary not for life but for perfect development.

Fermi seems to incline towards a belief in a form of symbiosis existing between the *B. coli* group and the intestinal mucosa. There are observa-

tions which tend to show that lower forms of animal life do not grow or thrive well on sterile food. It seems possible from studying Neumeister's work on physiological chemistry, that some forms of bacteria—not necessarily the *B. coli commune*—are of use in assisting fermentative processes, and in aiding in the resorption and absorption of products of digestion, and it is certain that as putrefactive organisms they do good. Nor is it impossible that they are capable of splitting up certain toxic substances, thus rendering them harmless. The question of adaptation of the body to bacteria is well worthy of extended study; but while it is still a matter of speculation, it is safer to dismiss it with this brief allusion.

Taking a summary review of the points mentioned, we have seen that under ordinary conditions sound food often contains large quantities of bacteria, so that we habitually consume numberless micro-organisms. Further, the qualitative examination shows that we are habitually consuming such forms as the *B. coli commune* and *Proteus*. It is well that we should know the flora of apparently good food, and become familiarised with the idea, alarming to many, no doubt, that many articles of food daily consumed contain bacteria, some of which are described by bacteriologists as the typical organisms of the intestinal contents and of decomposing matter.

I do not wish to be misunderstood. I am not advocating the view that good food should be particularly rich in bacteria. All possible chance of direct faecal, sewage, or other contamination should be, and must be carefully avoided. On the other hand, we must not introduce a fictitious standard, and simply put on one side physiological facts and common-sense experience. Similarly we must pause before we give certain bacteria an absolutely specific significance which they possibly do not deserve.

The *B. coli commune* by itself does not prove sewage or faecal pollution; it may and often does point to it, under certain conditions which Dr. Klein has recently defined, but it cannot unconditionally prove it. Again, its importance as the cause of enteritis must not be exaggerated. Thousands of *coli* bacilli are periodically taken in with the food, and they pass into an alimentary canal already full of these bacilli. This is a point worthy of consideration. True, in an enteritis the *B. coli* may be found in pure culture in the dejecta, possessed of virulent properties when tested on the animal. This merely proves one of two things: if the *Bacterium coli* is the cause of the lesion then for some reason or another it must have been transformed from a harmless saprophyte into an irritant pathogenic organism; but it has not yet been shown that this organism is the cause of such a lesion, and therefore its abundant presence in such a lesion may be merely a concomitant phenomenon. The exact position of this extraordinary organism, or rather group of organisms, has not yet been exactly defined. Many observers may not agree with me; my own opinions are, however, based upon my personal acquaintance with the *Bacterium coli* and its varieties. It is of value in water or food examination, not because it is



absolutely specific of bad or polluted food, but because it is easily recognised, and therefore its source can often be traced. Food or water exposed to the danger of sewage or faecal contamination, as for instance Thames water, containing a certain percentage of *B. coli commune*, cannot be said to be freed from all pollution. Further we cannot go.—*Nature* Dec. 31, 1896.

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HAHNEMANN'S MODE OF ADMINISTERING  
MEDICINE.

I.

THE SIMPLIFICATION of Pharmacy is one of the greatest merits of Hahnemann. The steps which led to this were first, the use of the single medicine which has necessitated the abolition of poly-pharmacy ; secondly, the graduation of the dose on a fixed scale which has enabled the dispenser to do away with weighings and measurings. It will be seen how this simplification of pharmacy has affected the business of the pharmacist, and it is not to be wondered at that the first, the most violent, and the most effective opposition that Hahnemann met with, in the beginning of his career of reform, was from the apothecaries, who saw that with the establishment of his strange doctrines their occupation would be nearly gone. They saw that the physician would be able to prepare his own medicines and make up his own prescriptions, in fact, that he could be his own apothecary. It was, therefore, purely and solely in self-defence that they waged a most relentless war against him. But for their instigation perhaps the colleagues of Hahnemann would never have thought of persecuting him in the way that they did, and might have adopted homœopathy as one of the systems of medicine.

The graduation of the dose was, it must be remembered, on a fixed *descending* scale, so that it really meant subdivision and reduction of the medicinal substance, and it was for this purpose, indeed, that the processes of trituration and succussion were originally invented. But the processes led in many instances to wonderful development, or unfolding, as it were, of the medicinal virtues of drugs. Medicinal substances, when exhibited in a state of solution, acted more energetically than when exhibited in the solid state. Substances, which were inert in the crude state, acquired active powers when exhibited in a state of minute subdivision.

Hahnemann states but a fact when he says: "The founder of the Homœopathic system was the first who made this great, this extraordinary discovery, that the properties of crude medicinal substances gain, when they are fluid by repeated *succussion* with unmedicinal fluids, and when they are dry by frequent continued *trituration* with unmedicinal powders, such an increase of medicinal power, that when these processes are carried very far, even substances in which for centuries no medicinal power has been observed in their crude state, display under this manipulation a power of acting on the health of man that is quite astonishing."

In illustration he cites the instances of such substances as gold, silver, platinum, vegetable charcoal, and says: "Several grains of gold leaf, silver leaf, or charcoal may be taken by the most sensitive person without perceiving any medicinal action from them. All these substances present themselves to us in a state of suspended animation as far as regards their medicinal action. But if a grain of gold leaf be triturated strongly for an hour in a porcelain mortar with one hundred grains of sugar of milk, the powder that results (the first trituration) possesses a considerable amount of medicinal power. If a grain of this powder be triturated as strongly and as long with another hundred grains of sugar of milk, the preparation attains a much greater medicinal power; and if this process be continued, and a grain of the previous trituration be rubbed up as strongly and for as long a time, each time with a fresh hundred grains of sugar of milk, until after fifteen such triturations, the quintillionth attenuation of the original grain of gold leaf is obtained, then the last attenuations do not display a weaker, but

on the contrary, the most penetrating, the greatest medicinal power of the whole of the attenuations. A single grain of the last quintillionth attenuation put into a small, clean phial, will restore a morbidly desponding individual, with a constant inclination to commit suicide, in less than an hour, to a peaceful state of mind, to love of life, to happiness, and horror of his contemplated act, if he perform but a single olfaction in the phial, or put on his tongue a quantity of this powder no bigger than a grain of sand." We have had no experience with olfaction as here spoken of, but we have had enough of the administration of such preparations of gold by the mouth followed by the most beneficial effects in those who are suicidally disposed.

The instance of gold is but one out of hundreds in which this development of medicinal power has been observed. So that experience from the time of Hahnemann down to the present time has more than justified the pride with which he spoke of this discovery as one "which deserves incontestably to be reckoned among the greatest discoveries of the age." Is it possible to give a physical reason of this wonderful development of medicinal power? Or, must we remain content with the fact, without torturing the reason and the imagination for an explanation? The mind is never satisfied after having attained an object after which it has been striving. Its inherent tendency is to strive after more and more, further and further. Contentment has never led to progress. A man like Hahnemann could never rest satisfied with this remarkable discovery as a discovery. He has endeavoured to solve the apparent paradox.

Hahnemann's first explanation of this increase and development of medicinal power from subdivision and consequent reduction of size of particles of the medicinal substances, was more rational than his subsequent explanations. When challenged by Hufeland to defend publicly his statements about the efficacy of Belladonna in very minute doses, he replied in Hufeland's Journal (Vol. vi, Pt. 2, 1801) as follows:—

"You ask me urgently, what effect can 1-100,000th part of a grain of *Belladonna* have?

"A very hard dry pill of extract of *Belladonna* produces in a robust, perfectly healthy country man or labourer usually no effect. But from this it by no means follows that a grain of this extract



would be a proper, or too weak a dose for this or a similar stout man if he was ill, or if the grain were given in solution,—certainly not ! On this point let the pseudo-empericism of the compoundiums hold its tongue ; let us hear what experience says. The most healthy robust thresher will be affected with the most violent and dangerous symptoms from one grain of extract of Belladonna, if this grain be dissolved thoroughly in much (e.g. two pounds of) water by rubbing, the mixture (a little alcohol being added, for all vegetable solutions are rapidly decomposed) made *very intimate* by shaking the fluid in a bottle for five minutes, and if he be made to take it by spoonfuls within six or eight hours. These two pounds will contain about 10,000 drops. Now if one of these drops be mixed with other 2000 drops (six oz.) of water (mixed with a little alcohol), by being vigorously shaken, one teaspoonful (about 20 drops) of this mixture given every two hours, will produce not much less violent symptoms in a strong man, if he is ill. Such a dose contains about the millionth of a grain. A few teaspoonfuls of this mixture, will, I assert, bring him to the brink of the grave, if he was previously regularly ill, and if his disease was of such a description as Belladonna is suitable for. •

“ The hard grain-pill finds few points of contact in the healthy body ; it slides almost completely undissolved over the surface of the intestinal canal invested with a layer of mucus, until it (in this manner itself covered with mucus), completely buried in excrement, is speedily expelled in the natural manner.

“ Very different is it with a solution, and particularly with a thorough solution. Let this be as weak as it may, in its passage through the stomach it comes in contact with many more points of the living fibre, and as the medicine does not act atomically but only dynamically, it excites much more severe symptoms than the compact pill, containing a million times more medicine (that rests inactive), is capable of doing.”

From the above extracts it will be seen that in the beginning (1801), when he had just discovered the efficacy of small doses, he believed that that efficacy depended upon the medicine having, by the fact of subdivision, more points to come in contact with “more points of the living fibre,” than in its crude, unsubdivided state, and also upon the sensitiveness of the organism in a state of

disease. Of this last he says : " It is a fact, that in disease the preservative power, together with all the subordinate, nameless forces (some of them almost resemble the instinct of animals,) is much more excitable than in health; when the reason and the power of the animal machine being in their complete integrity stand in no need of such anxious guardians. How well the patient distinguishes betwixt drinks that will do him good, and such as will be prejudicial to him ! An individual affected with an acute fever, smells from afar the approach of an animal soup, to which his now wakeful, still unknown life-preserving faculty evinces the greatest repugnance. He would vomit violently were we to bring it too near him."

Thus the explanation of the increase of medicinal virtues of medicinal substances was based upon two positive facts, the multiplication of points or surface by subdivision and the extreme sensitiveness of the organism when diseased; and so far no objection can be taken to it. But there is one assertion made by Hahnemann to which objection might be taken on the ground of its being a mere assumption, and certainly not a proved fact. The assertion is that " the medicine does not act atomically but dynamically." Here the door is opened for speculation. What is meant by atomic action and what by dynamic ? Is there any difference between the two kinds of action ? If so what is it ? Do all medicines act dynamically in all their forms, or do they act so only when reduced to minute subdivision by trituration or succussion or both ? Whether these questions ever occurred to Hahnemann or not, we cannot say. That he never raised them is certain ; and there is no possibility of knowing how he would have answered them.

Judging by the turn his mind subsequently took, remembering that he became a thorough vitalist, we think we would not be very far from right if we suppose that by atomic action he meant chemical action, and by dynamic he meant vital action or action on the living organism and its living components by the medicinal substances, quite distinct and different from their action on non-living or dead matter. If so, we cannot say that we can take any exception to the assumption or the speculative assertion that he has made. For, though all vital action is material action, or action between a few, limited kinds of matter,

and is dependent upon the action of a material environment, it has never yet been reduced to physico-chemical action. Living matter has never yet been produced except from living matter. No physico-chemical agency has yet succeeded in producing the lowest living organism from non-living and dead matter; all such vaunted productions having been shown to be absolutely and utterly fallacious.

But even admitting that vitality or the vital force is a force *sui generis*, distinct from all physical and chemical forces, it cannot be denied that vitality acts upon and is acted upon by these forces. And therefore the exaltation of the powers of medicinal substances after subdivision of their particles is quite explicable by that fact without having recourse to the hypothesis or rather assumption to which Hahnemann had recourse in his later career. In reference to these subdivisions he says (1825):—"But these homœopathic medicinal attenuations (pity there is no more appropriate word in any language to express what takes place in the process, as this phenomenon was never heard of before its discovery)—these attenuations are so far from being diminutions of the medicinal power of this grain or drop of the crude medicinal substance keeping pace with its extreme fractional diminution as expressed by figures, that, on the contrary, experience shows them to be rather an actual exaltation of the medicinal power, a real spiritualization of the dynamic property, a true, astonishing unveiling and vivifying of the medicinal spirit."

Here we have the language, not exactly of sober science, but rather of metaphor, of poetry, of philosophy transcending the limits of the human understanding. We can follow the author with unfaltering steps as far as "exaltation of the medicinal power," but the reason fails and staggers in the region where he sees the "spiritualization of the dynamic property," "the unveiling and vivifying of the medicinal spirit." But the language of metaphor does not stop here. He soars higher as will be seen from the following reasons which he gives "why the sceptic ridicules these homœopathic attenuations." Says he: "*First*, because he is ignorant that by means of such triturations the internal medicinal power is wonderfully developed, and is as it were liberated from its material bonds, so as to enable it to operate more penetratingly and more freely upon the human organism; *secondly*,

because his purely arithmetical mind believes that it sees here only an instance of enormous sub-division, a *material division and diminution*; wherein every part must be less than the whole—as every child knows; but he does not observe, that in these spiritualizations of the internal medicinal power, the material receptacle of these natural forces, the palpable ponderable matter, is not to be taken into consideration at all; *thirdly*, because the sceptic has no experience relative to the action of preparations of such exalted medicinal power.”

— These speculations open up questions of vast magnitude and, we may say, of surpassing interest to the physicist. Is the force which a material body manifests or exerts, distinct from the body itself, its ultimate particles—molecules or atoms, of which it is composed? Can such force be separated, dislodged, liberated from its material bonds? If they are so liberated by the processes of trituration and succussion, what becomes, we may ask, of the receptacles, the shells as it were, of the true medicinal powers? They cannot be annihilated. Do they then reside separately from these powers in the triturations and solutions? Is it possible to conceive of their separate existence in the same vehicle, be it in the shape of a powder of sugar of milk, or of a liquid in the form of water or spirits of wine?

Apart from these questions there is another of not less interest and importance, especially to the homœopathic physician and therefore to the homœopathic pharmacist, is—how long should the process of trituration or of succussion be continued for the same preparation or attenuation? In the case of trituration there is friction between the pestle and mortar and the particles of sugar of milk and of the medicinal substance. In the case of succussion there is friction between the walls of the vial and the particles of water and spirits of wine and of the medicinal substance. It is by this friction that the medicinal substance is comminuted to finer and finer fragments. But friction we know develops heat and electricity. Have heat and electricity thus developed any thing to do with the development of medicinal power? Hahnemann has cited the almost inexhaustible development of heat as a remarkable effect of friction. But though heat and electricity may be and must be developed in the processes of trituration and succussion, they are grad-

nally dissipated on the cessation of these processes. Now the question is, does the transient heating and electrification of the particles of the medicinal substance make any permanent impression upon them? We shall see in our next how a vague idea of the effects of trituration and succussion exercised and perplexed the mind of the great founder of homoeopathy, and led him to repeated contradictions.

### THE NEW TEST ACT, &c.

(REPRINT OF AN OLD PAMPHLET, *concluded from* p. 112 of the double No. for March and April 1897.)

meant) if he became convinced of the truth of Homoeopathy? Indeed! Why so? Would it then cease to be true that Mr Pope had made good studies in Botany, Anatomy, Pathology, Physiology, and all the other prescribed subjects, even in *Materia Medica* and the Practice of Physic, so as to pass the usual examinations upon each of them? and if all this was true, on what intelligible ground should his Degree be cancelled?

Mr Pope appears to have had a much juster notion than his teachers of the nature and import of a Degree in Medicine, and, consequently, of what the preceding examinations ought to be; and it is worth noting how very nearly his extempore remark, "that the Degree was merely an attestation of the amount of medical knowledge to which" he "had attained," coincides with the more deliberate statement on that point of Dr. Christison's distinguished predecessor in the Chair of *Materia Medica*. When examined before the University Commissioners (A.D. 1826), Dr. Duncan, jun., said:—

"With regard to the Medical Degree, I would say that the Medical Degree of Edinburgh is purely professional, and it is in high estimation both in this empire and in its colonies, as is proved by the great number of individuals who come here to graduate. It is likewise in estimation on the Continent. It is merely a designation by which the public know that the individual has had a certain amount of professional and general education, and has been able to pass through a certain course of examination. The Doctors of Medicine in this University acquire thereby, however, no monopoly in the practice of medicine. There appears

to me great danger in altering the character of this Degree; but little danger would arise from increasing the *professional acquirements of those who obtain it*, because it is *for these that it is valuable for the public*; and, if these were raised, it would become more valuable; 'but there would be great danger in rendering it more literary or scientific.'—*Minutes of Evidence*, p. 235.

It will be observed, that Mr Pope did not, in this examination, commit himself to the pursuit of Homœopathy; he only expressed a resolute intention to investigate its claims. He was quite entitled to do more. The questions he was asked being irrelevant, his pertinent answers to them ought to have been held as irrelevant to the examination. Personal practice in the giving of drugs is no legitimate subject of examination. As a mere student, he had no more lawful right to practise than any other "unqualified" amateur. In the prospect of soon receiving a Degree, he was quite entitled to say (nor could the answer be objected to), that he did not know what doses he would give. It was time enough for him to make up his mind on that point when his advice was required; and physicians would be wiser, and their practice more successful, if, in determining quantities, as well as in other respects, they paid more regard to the peculiarities of each case, and less to apothecaries' recipes. But what if he did not intend to practise at all—at least, not in the meantime? There is no improbability in the supposition of such a case, which would occur oftener than at present, were Practitioners of Medicine more anxiously conscientious in the matter of giving drugs. So far from its being improbable, it is a case of usual occurrence. Speaking with reference to the age required of Graduates (21 years), Dr Alison says:—"In regard to the age, I may mention, that it cannot be supposed that a man of twenty-one will enter at once into practice as a physician. *If he enters at all upon practice at that age, he enters as a general practitioner, and is an assistant almost always to an older man.*"\* Or, again, what if he be resolved not to copy, but to undo the Homœopaths by giving even less medicine than they do, after the lauded example of a distinguished physician in Edinburgh (Dr John Thompson, we believe), referred to by the accomplished Dr John Forbes, lately Editor of the "*British and Foreign Medical Review*!"† If

\* University Commission, Evidence, p. 491. † See No. xlii, p. 264.

giving infinitesimal doses be bad, is the giving of none worse; in the eyes of the learned examiners? To save his credit, must a physician give a dose in every case? Or how often may he omit doing so with impunity? Or is it only insisted for, that, if he does give a dose, it shall be a stirring one?

But, putting out of sight all such puerilities, let us look for a little at the bare principle contended for (implicitly, for it is not distinctly avowed) on the part of the Faculty of Medicine. It claims the right of authoritatively regulating, not the study only, but the practice of medicine, and that even in the matter of the quantities of each to be given. Now, can anything be more absurd? Our readers have been already reminded (few of them need to be informed) that the history of the practice of medicine exhibits incessant change. Is that to its discredit? Not so. It can only claim to be regarded as a science, or even as a living art, by showing progress; and how can there be progress without change? The reproach which has been thrown upon the body of practitioners by the most eminent among themselves has been, that it has always resisted progress; that it has been too slow to receive improvements; that it has been inert and stationary, scowling upon the more ardent and advancing of its members; and that thus nearly all the great benefactors of man in that department of action are remembered as having been stoned by their fellows, whose descendants build their sepulchres. Each reformer is an innovator. In this respect, Homœopathy has no cause to complain of unusual treatment. It is in truth honoured by being thus put in the category of modes of practice prohibited or proscribed. If it be true, like every great truth, it will have to fight its rough way into recognition and acceptance; but, whether true or not, it falls not within the authority of the Faculty of Medicine so summarily to put it down. Before we pronounce anathemas, we ought at least to have a creed; for how shall we know the False, but by the possession of the True? No advance has ever been made in this world, in any region of thought or action, by mere *negatives*; which are only valuable so far as they point to, or prepare for, what is *positive*. We live all of us, not by refusing Errors, but by accepting Truths. If the Faculty of Medicine of the University of Edinburgh be prepared with a creed on which they can agree, for the detailed regulation of

practiced; by all means let us see it; and then, having accepted it, they will have some rule by which to reject what is contrary and heretical. Till then, there is no orthodoxy and no heterodoxy in medicine. Each educated practitioner shall do that which seems good in his own eyes.

When such novel agreement comes among them, one of the very last parts of practice which it will reach, we may safely affirm, will be the *quantities* of medicine. There is no ancient recognised creed to fall back upon in present doubts or disagreements; and there are no natural limits in the matter, except the causing death on one side, and utter inactivity on the other. Between these extremes, there is room for infinite variety. If the Homœopaths be supposed to approach the latter limit, some other practitioners go dangerously near the former. Will the Faculty of Medicine undertake to lay down practical limits on either side, within those we have indicated, the transgression of which shall incur forfeiture of character? I think not. But even could they now make such a rule, it would be too late for the adjudication of Mr. Pope's case. It will not do to try a man first, and then justify the condemnation by an *ex post facto* law. There was no law of the Senatus (*and did not the examiners know it?*) by which they had right to reject a candidate, on the ground that he had resolved to investigate, nay, that he had even embraced, with all his young strength, the Homœopathic system. So far as their "remission" rested on that ground, they stand convicted of glaring injustice. What protection is there to modest, ingenuous, devoted students against such tyranny? If the Faculty of Medicine have rejected Mr. Pope yesterday, because he has a leaning towards Homœopathy, they may reject Mr. Pagan to-morrow, because he confesses an intention to use chloroform, or *not* to use it; or has no faith in the virtues of cod-liver oil; or believes in Mesmerism, or *disbelieves* it. Is Homœopathy more distinctly an innovation than the use of chloroform, or than Mesmerism? Does Dr. Simpson practise precisely as Dr. Hamilton did? Or does Dr. Christison teach only what he was taught at college? If there be no law there can be no transgression; and, if the examiners are bound by nothing but their own particular notions of what is the best practice, there can be no security that the student, who was passed with *act*



by one set of examiners, would not, just for the very reason, have been instantly "remitted" by another. If such doings are to be allowed, the ancient credit of our University will soon be lost. It will have set itself against the advancement of learning, the progress of science, the improved practice of medicine. If, on the other hand, it be said for the examiners, that there is a law of the University which justifies their proceedings, let them point to it. We state emphatically, that they are condemned equally by law and by uniform established practice. It appears that the University Commissioners had under consideration to recommend the appointment of other examiners in medicine, in order to relieve the Professors from that onerous duty. One or two more such examinations might prove that the step was a necessary one, for different reasons.

Before the authorities of the University (the Patrons or the *Senatus*, as may be, one or both) are prepared to pass any statutes for the exclusion of students who are favourably inclined, or indifferent, towards Homœopathy, a good many things will have to be considered. We can only notice a few of these. The general results of medical practice will have to be examined, that these may be compared with the results of Homœopathic treatment, in order to arrive at a just judgment on their respective merits; and this will be a very serious, and possibly not a very satisfactory, inquiry for the Colleges. It can hardly be entered into without the inquirers (if they be at all unprejudiced and competent) coming to the conclusion, that the present state of the practice of medicine is such as to admit of much improvement; and that the duty of all practitioners is to look out anxiously in any quarter where there may be promise of aid. It will have to be considered that the fact is undeniable, that a large proportion, including many of the most scientific practitioners, have sadly lost confidence in the virtues of medicines, as usually administered; and that the recorded testimony of such a man as Dr. John Forbes—late Editor of the leading English Medical Journal—is to the following effect:—

"1. That in a large proportion of the cases treated by Allopathic Physicians, the disease is cured by nature, and not by them.

"2. That in a lesser, but still not a small proportion, the dis-

case is cured by nature in spite of them; in other words, their interference opposing, instead of assisting the cure.

"3. That, consequently, in a considerable proportion of diseases, it would fare as well, or better, with patients, in the actual condition of the medical art, as more generally practised, if all remedies, at least all active remedies, especially drugs, were abandoned.\*

Such a judgment is fully corroborated by that of our late much respected Dr. Andrew Combe, in a letter to the writer of that article [26th January, 1846]. Although certainly no Homœopathist, he writes as follows:—

"A few words now on Homœopathy in particular. I am very glad that you have brought the question of its truth and merits seriously before your readers; for, of all methods of advancing the interests of science, that which consists in the supercilious neglect of alleged new discoveries, merely on the ground that they differ from what is already known, is assuredly the worst. .... But surely we are bound not to be too rash in rejecting, without examination, facts and principles which come before us, attested by men of experience, skill, and integrity, and who can have no motive for deceiving us. Judged of by the standard of our own opinions, these facts and principles may seem at first sight to be altogether absurd; but, if so, the question then comes to be, is our standard itself undoubtedly a correct one? Or may it not be that ignorance has misled us to adopt it as infallible, and that it would be wiser in us to compare both it and the alleged discoveries with nature, before assuming either to be demonstrably true.

\* Again, "*as a matter of theory*, supported only by argument, Homœopathy produces no conviction whatever on my mind of its truth, or even of its probability; but, *as a question of fact*, claiming to rest 'on the irresistible ground of its superior power of curing diseases, and preserving human life,' and on the alleged experience of able and honest men, as competent to judge as most of those who oppose them, I cannot venture to denounce it as untrue, because I have no experience bearing especially upon it to bring forward, and we are still too ignorant to be able to predicate *a priori* what may or may not be true in the great field

\* British and Foreign Medical Review. January, 1846. P. 257.

of nature. But after the presumptive evidence which you yourself have produced, *if I were now in practice, I should hold myself bound, without further delay, to test its truth by careful and extensive experiments*, because, where truth is really our aim, the shortest and least encumbered approach to it is always the best; and even a few well-defined and carefully-observed facts would carry far more weight, as *items* of evidence, than volumes of general or controversial reasoning..... View the question as we may, *one of three things must be*: either Homœopathy is true, or it is false, or it is a mixture of truth and error. Let us suppose the worst, and hold it to be false in its foundation, and false in its superstructure—what harm can result from putting it to the test, and ascertaining the fact demonstrably? None whatever, but, on the contrary, much good. *We shall at least have gained the power of giving a direct and authoritative negative to its allegations*, which we shall then prove to be fallacious, and which have been suffered to reign and diffuse themselves for thirty years, from the absence of *direct* counter-evidence by which to rebut them. We shall thus be able also to *put the profession and the public on their guard with some chance of being listened to*, and shall have obtained the inestimable advantage of keeping our own minds open to the admission of new truths, and of showing that, in our estimate of evidence, and in our conclusions, we are actuated not by any mean jealousy or dogmatic assumption of authority, but by the single and simple desire of advancing the interests of science and humanity to the best of our ability."

You will observe this to be a very different conclusion from that to which the conduct of the College of Physicians and of the Faculty of Medicine points. But Dr. Combe had calmly considered the subject; we have no reason to believe that the Members of either of these bodies had done so. They rather, on the other hand, remind one of the proceedings of a jury not remarkable for impartiality towards the accused: of whom the first said, "I see clearly that this man is a heretic;" the second, "Away with such fellow from the earth;" the third, "I hate the very look of him;" the fourth, "I never could endure him;" a fifth, "Hang him, hang him;" yet another, "A sorry scrub;" "He is a rogue," said Mr. Liar.

In regard to such a statute as would exclude Practitioners of Homœopathy from any of the benefits connected with a Degree in Medicine, one of the first questions to be answered is *Qui bono?* Whom would it advantage? for, of course, neither the Senatus nor the Patrons would be accessory to such a step in order to gratify the *odium medicum* of the Faculty. It would not benefit the University, for the students thus excluded would *pro tanto* diminish the total number attending the University, whose character also for liberality, and free inquiry in science, would inevitably suffer damage. It would not advantage the public; for, (if putting out of view all baser considerations) it be quite certain, according to the law of probabilities, that, so long as there is a large and influential body of lay adherents of Homœopathy in this country, there will also be practitioners, it is clearly for the gain of the public that the practitioners shall be well instructed in medical science, so as to be more likely to come to a better mind, if now under a delusion. Another advantage is, that the professors of the heretical system are likely to be less sectarian if, during their college-days, they receive instruction, and pursue their studies in the company of their orthodox coevals. I do not imagine even the most bigoted opponents of Homœopathy to be so blinded, as to suppose that any possible system of exclusion or persecution will exterminate all medical practitioners of a system which claims among its lay adherents in England such a class of men as is indicated by those who have been already named. If, then, practitioners of Homœopathy there must be, surely the more they are under a liberal system of medical education, the better for all parties, except those (not to be spoken of here) whose base aim it is to depress their professional rivals, that they may thus gain for themselves an apparent elevation.

Of the evil effects likely to follow from the conduct of the Medical faculty, one of the gravest remains to be noticed—I mean, the corruption of the students. Were an enemy bent on devising a snare by which weak consciences might be entrapped, a more crafty and ruinous one could hardly be invented. A student, whose whole prospects in life are dependent upon his obtaining a Degree, appears for examination before a tribunal which has declared that any intention of practising or investi-

gating Homœopathy is an insuperable bar. His conscience tells him emphatically that Duty demands that he shall examine the proscribed system, perhaps confess himself already a believer in it. He is asked, "Have you any intention to practise Homœopathy, or to study it?" What shall he answer, Yes! or No? On the side of *falsehood*, is professional reputation, success, emolument; on the side of *truth*, dishonour, disappointment, possibly starvation; and it will, perhaps, be hinted to him that really there can be no duty in the matter; that he may do very well with the lessons he has already learned. If his teachers thus become the tempters, shall we wonder if he falls? and how shall we except truth, moral courage, elevation of sentiment, in a profession which is thus entered with shame?

In concluding this subject, I shall only add, that it seems to me that no right-minded man can read Mr Pope's narrative without deeming it to call for either a specific denial or an explanation on the part of the Medical Faculty. At present, they lie exposed to very grave charges; and, if I may trust altogether in the reporter's accuracy, there were things said by Members of the Faculty, the moral nature of which I will not trust myself to characterise. Any denial or explanation from them will, of course, be as specific as the charges are; and I shall be exceedingly glad if they are able to clear themselves from all just blame. We shall learn, at least, on their own authority, what were the real grounds of Mr Pope's "remission." Unless they deny the statement *in toto* (which I cannot suppose), they will have to explain how Homœopathy came to be mentioned at all on the occasion referred to. In the meantime, any satisfactory explanation on this point seeming to me impossible, I cannot avoid the conclusion that their conduct in this matter was eminently illegal, cruel, and unjust.

I now come to the Third Act.

I have already considered the insolent attempt of the College of Physicians to discredit the Practitioners of Homœopathy, and to dictate to the public their own arbitrary terms; thus combining to defraud us of medical services to which we are justly entitled. Next, I have disclosed the plot by which it was proposed to exclude from University honours in Medicine every candidate who should show any partiality towards that system. I have

now, finally, to bring under your notice the recent movement of the same Medical Faculty in the University, with the aim of expelling a Professor who was appointed to the Chair of Medicine and General Pathology, on very high recommendations, and who has, during some nine years, discharged his duties ably and faithfully, to the credit of the University, and to the satisfaction of the public. Resolute in their determination to extirpate the growing heresy, our medical friends have left no means untried, but those of experiment and conclusive refutation. First, they resolved to disown those who had already graduated; next, to allow no more Graduates; and, lastly, to oust one of the Medical Professors, whose honest conversion to the heresy has been intolerably mortifying to them.

That Dr. Henderson is a man of high professional reputation and of acknowledged ability, there can be no doubt; and it can as little be questioned, that he particularly excels in the diagnosis and description of disease, which renders his testimony as to the effects of Homœopathic remedies peculiarly valuable. The Medical Faculty no doubt felt that, while one of the Professors of Medicine was a Homœopathist, with whatever loudness and frequency they might repeat their cry, that the Practitioners of Homœopathy were not scientific or "regular" physicians, but mere quacks; even those of the public who knew nothing personally of their merits, would ascribe such language to the want of manners and good feeling, and merely add such expressions to the already crowding instances of "God's great gift of speech abused;" that, to quote from Dr. Ransford's Reasons, "to call Hahnemann and his followers quacks, is merely to say that which is false." It was, therefore, of extreme importance to the play that Dr. Henderson should be got rid of. Fortunately, our University is not so constituted that the other members of any one of the Faculties can degrade a Professor whose teaching happens to be obnoxious to them; else it would be a curious jumble. In the Medical Faculty, one would hardly be well in, before they began to speak of putting him out. Dr. Simpson would have been expelled long ago for his chloroform; Dr. Gregory for his mesmerism.

Well aware of this, the Faculty of Medicine has not attempted a direct vote of expulsion against Dr. Henderson. Its course

has been a little more circuitous. At a recent meeting (24th June, 1851), Resolutions to the following effect were carried unanimously:—

"1. That the public profession of Homœopathy by the Professor of General Pathology, is inconsistent with the efficient discharge of the various duties which belong to that chair, and is calculated to injure the University as a Medical School.

2. That the Senatus Academicus be requested to transmit a copy of this resolution to the Patrons of the University, together with the expression of a hope, on the part of the Medical Faculty, that some step may be taken to avert the danger which is thus threatened to the University."

Although the latter Resolution modestly suggests "some step" merely, I can have no doubt that what is aimed at is Dr. Henderson's removal; for the terms of the first resolution exclude every other reading. Had the *teaching* of Homœopathy within the College been the alleged grievance, it is intelligible that a less formidable visitation might have been effectual; if irregular, he might have been solemnly censured by the Senatus. But the ground of offence is "the public profession" of it. For this, besides expulsion, there seem only two conceivable remedies. Either, *continuing to believe* the Homœopathic system to be the best, Dr. Henderson may be urged to *cease to profess* it; but I am sure the Members of the Faculty cannot intend to propose to those whom I am now addressing the execution of a function so dishonourable: or it may be supposed that the powers of persuasion which belong to the Members of Council will be adequate to achieve Dr. Henderson's reconversion to orthodoxy, where the eloquence of his brothers of the Medical Faculty have failed in doing so. It would be a singular disputation, no doubt. However credible such a meaning might be, if the proposition came from another quarter, I can hardly suppose it to be the meaning of the Faculty. Thus, the only probable reading of these resolutions which remains to me, is that which regards them as expressive of a desire, on the part of the Medical Faculty, that the Patrons will take steps for Dr. Henderson's degradation from the chair he now occupies.

And so that Resolution was carried *unanimously* by the Members of the Faculty of Medicine within the university of Edinburgh, during the latter half of the nineteenth century. Thus, on some future day, may the historian of science record his astonishment

that until so late a period there was no freedom of inquiry and practice, even in medicine, within the Metropolitan University of Scotland. For my own part, I wish to say very little about it; I am heartily ashamed for our city and Alma Mater. Unanimously! Was there not *one*, among so many, liberal and bold enough to utter an indignant manly dissent? Among the Medical Professors of Edinburgh, is there not *one* remaining of the good old stock?

I am not fond of unanimous resolutions, because very seldom (unless when they are merely superfluous) they seem to me to express a true unanimity. There is often a dangerous cowardly gregariousness which leads public bodies to avoid division. A majority, perhaps even a resolute minority, thus appears as the whole. Had the flock but been divided, one cannot tell on which side the most would have been found; and I have observed of gregarious animals, that, when one of the flying herd has got heart to turn and stand at bay, he is not left to stand alone.

Having with one voice, if not with one mind, adopted this Resolution, the next step was to bring it up to the Senatus, to be by them accepted and transmitted to the Patrons. Its authors seem to have thought that there was to be no difficulty with the Senatus; that any reputed heresy in medicine, although admittedly not taught within the University, which had thus received final sentence from the Faculty of Medicine in solemn conclave, could not but be instantly condemned by the Members of the Faculties of the Arts, Law and Theology. Especially by the last; "for was there not an obvious analogy—a clear identity of principle in the two cases?" Is it possible that any Member of the Senate can have really argued so? It is averred, but can it be true? I believe it; and the argument I think a very logical one. There is wanting only an admitted premiss, and the conclusion cannot be questioned. *Given* an authenticated Medical "Confession of Faith," required by statute and usage to be signed by all the Professors of Medicine, and it will follow that they must teach accordingly within the College. But alas! for the conclusion of the matter. They had come without their bond; and so forfeited not only the pound of flesh, but what more will have to be paid by way of public penance for so grave a crime. No Medical Creed had ever been heard of in the Senate; and the Faculty of



Medicine were in such haste to bring up their Resolution, that they had neglected to prepare one. And so the matter ended; not one Member of any of the other Faculties, as I understand, shewing any inclination, for the business. The motion is stated to have been withdrawn, as having been irregular by defect of due notice. The next notice of such a proceeding will, no doubt, contain a distinct reference to the new creed, which we shall all be curious to see. Even then, I cannot imagine how they propose to get over the difficulty, that the alleged heresy is not taught within the University. We shall wait with much interest to learn what their next step is to be. In the meantime, I claim their thanks for thus directly communicating to the Patrons their benevolent, liberal intentions in the matter, which it was their purpose to make known through the Senatus.

So, for the present, ends the Third Act of this Conspiracy. I have been informed that in other quarters steps are being taken with a view to its farther development; but I shall not detain in my hands what I have already written until the completion of the Fifth Act. Should it appear necessary, I may have something more to say on the subject. In the meantime, I am anxious that what has already taken place should be publicly known; thus, what is to come will be the better attended to.

Hitherto I have assumed the position of stern, uncompromising hostility to the various proceedings on which I have found it my duty to comment. At the same time, I believe myself to have in no instance transgressed the right limits of such controversy. I have made no personal attacks, and have imputed no unworthy motives. The questions of this nature which appear on the face of Mr. Pope's statement are not of my suggestion. I shall be the first to regret if I have misrepresented any of these transactions; but, as I have founded my judgment and my arguments upon the authentic records, by embodying these in this Letter, I have put my readers in a position to correct for themselves any errors into which I may have fallen.

I am very unwilling to end this Letter without adding a few words of earnest friendly remonstrance. Did I feel less than I do the high dignity of the physician's vocation, and remember less how many great and true men have laboured in it, painfully and magnanimously, for the good of mankind, I should be less affect-

ed than I now am by the conduct to which I have had to refer. If I had little faith in the past achievements or future possibilities of medicine as a science or as an art, any discredit which might be attached to it would hardly move me. I confess it is far otherwise. Believing that there are great conquests in reserve for it, I cannot regard with indifference the erection of ill-considered barricades which will inevitably retard its progress. Their builders, no doubt, intend that its progress in one direction only shall thus be impeded; but the introduction and culture of such a spirit in science tends necessarily to its stagnation. Science advances by growth, not by mere accretion; and to obstruct its free expansion in any part is to dwarf it. If I think it *probable*, judging from its history, that the Homœopathic system is destined to exert much influence on the healing art, I *have no doubt at all* that the attempt to repress it, or any other practical system honestly pursued, by means of insults and penal measures, will only degrade medicine; for, observe that here, as in higher things, such means of repression have no necessary, no natural relation to Truth; for once that they are used on her side, they will be at least ten times employed against her.

It may be thought that Hahnemann and his disciples have not contributed much as yet towards medical science; but will any candid and well-informed observer refuse to admit that they have contributed something? Is it nothing to have insisted on the exact observation and detailed recording of the action of medicines? Are there not new and valuable remedies now coming into common use, which they introduced? Has not the general practice of the profession, as regards the use of drugs, been, during late years, sensibly affected by the infinitesimal doses? Let them be quite sure that they have assimilated into the body of medical science all the nutriment to be derived from this source, before they contemptuously and permanently sever themselves from it.

• Again, if belief in the efficacy of infinitesimal doses be a delusion, is it so very hurtful? In the present state of the art of healing, when so many of its distinguished practitioners have to record a decrease of faith in drugs, with increased experience of disease, is it not greatly safer to give too little medicine than too much? And if it be a mischievous delusion, to be discountenanced, and, if possible, dispelled, are obloquy, persecution, contempt, insult, directed against its sincere and earnest votaries, the means which duty or wisdom urges for its defeat or extinction? On the contrary, does not all history teach us, that, instead of dissipating any vaporous form of belief, the uniform effect of persecution is to crystallise it into permanency? Let the Practitioners of Homœopathy continue mixed with the general body of physicians, and, if the system be false, the stronger truth

which the others hold will ere long supplant and exterminate it. Let them be put out of communion, and, by external pressure, condensed into a distinct sect, having no intercourse with the rest of the profession; then, *true or false*, it may be safely predicted of the system, that it has a long life in prospect. From that time forward, its young *alumni* will seldom come into close contact with the other forms of medical belief; they will be nursed in separate institutions; in which, during their whole course of instruction, it will be instilled into their receptive minds, that the Homœopathic is the one all-inclusive, all-sufficient system of knowledge and practice in that department of the profession; and he will, indeed, be zealous for orthodoxy who has much hope of reclaiming them after such training. Even now, in consequence of the proceedings of the Colleges and the Medical Faculty, some of the adherents of the persecuted faith have begun to agitate for such exclusive institutions.

Let the persecution advance, and certainly it will result in their establishment. That such a consequence would be highly injurious to our Universities, and to the general education of the students of medicine, I have no doubt. If the Homœopaths get into their own hands the power of granting Degrees in Medicine (which will obviously be necessary if the University Degrees are denied to them), they will be enabled to affect the general body of practitioners far more widely than they now can; and, like all young licensing bodies, they will be tempted to lower the standard of education. At any rate, they will thus come into distinct competition with the old-established Colleges. I cannot suppose those who are now engaged in the crusade against Homœopathy to be indifferent to this result; and I might wonder at their present tactics, were I not aware that an insolent contempt of their advancing opponents conceals from them the serious nature of the contest.

The course of Homœopathy exhibited in its history might correct their judgment. So might familiarity with its literature, or, still more, personal intercourse with the more distinguished of its professors. It is singular, that the President, and the other Members of the College of Physicians, who had recently an opportunity of meeting with Dr. Arneth, of Vienna, as a specimen of the Continental Homœopaths, should not have formed a juster estimate of the system and its adherents, than their Resolutions express. There are those, too, living among us, whose ability, acquirements, and disinterestedness, daily teach the same lesson. If we *will* shut our ears against the truth, it is true we can do it; and the Truth in her advance will then pass us by; nay, but if we will not go out to seek her, prepared to do her homage, although she appear in meanest clothing and in lowliest places, we shall hardly find her. If we make up our minds beforehand,

in what form, from what quarter, with what accompaniments her approach is to be, our pre-judgments will be our only conclusions.

Finally, I adjure our medical friends, as they regard the dignity of their profession, as they desire the advance of science, as they value sincerity and ingenuousness, as they confess allegiance to the laws of nature, which will receive no dictation from man ; above all, as they would not be found doing injustice and cruelly oppressing the innocent ; in short, as they feel the claims of highest Duty, I adjure them to pause ere it be too late, and willingly to retrace their steps, lest ignominiously they may afterwards be compelled to retreat from their present false and discreditable position.

I have the honour to be,

My Lord Provost and Gentlemen,

Your obedient servant,

AN ALUMNUS OF THE UNIVERSITY.

#### APPENDIX.

“ At Edinburgh, and within the College Hall there, the ninth day of May, one thousand eight hundred and fifty-one years, an Extraordinary Meeting of the Royal College was held, pursuant to a Resolution agreed to at the last Quarterly Meeting, and of which Extraordinary Meeting due notice was given by billets sent to all the Fellows.

• “ Dr. Simpson, President, in the chair. Roll called, and absentees fined.

“ Dr. Alexander Wood, the Honorary Secretary, reported the circumstances which led the Council to believe that the time was now come when it was necessary to take some steps in regard to those Fellows of the College who had professed themselves  
• Homœopathic Practitioners.

“ The following Resolutions were moved, seconded, and *unanimously* agreed to :—

“ 1. That the Royal College of Physicians of Edinburgh did several years ago publicly express its opinion of Homœopathy and Homœopathic Practitioners, by peremptorily declining to admit into its body a candidate for its Fellowship who belonged to that denomination, and consequently that no Fellow of the College can possibly be ignorant of the light in which all those who practise Homœopathy are regarded by the College.

“ 2. The College regret that, notwithstanding this decided expression of their opinion, more than one of its Fellows, after being admitted in a different character, have endangered the reputation

of the College by becoming Homœopathic Practitioners; and the College express an earnest hope that these Fellows, seeing that they have thus virtually separated themselves from the College, will *spontaneously* sever their further connection with an Institution which repudiates them, and from which they derive, as merely nominal Fellows, nothing else than a false position and a spurious credit.

"3. The College feel the more bound thus to express their opinion, inasmuch as those of the Fellows who have become Homœopathists, or any other Medical Practitioners who follow Homœopathy, must necessarily be aliens to the other Fellows, and to the profession at large; inasmuch as no fellow of this College, nor any other physician, can, by any possibility, without derogating from his own honour, and from the honour of the profession, meet Practitioners of Homœopathy in consultation, or co-operate with them in the other common duties of professional life.

"4. That, although the College has hitherto not thought it expedient to take any active steps for disclaiming those Fellows who have become Homœopathic Practitioners subsequently to their admission to the College, nevertheless, since it has the power of dealing summarily with those who act in a manner so unbecoming the character of a physician, it reserves its right to exercise this power when it shall be so advised.

"It was further moved:—

"That the College having found it necessary at length, and very reluctantly, to take action in regard to those Fellows who, having entered the College in a different character, have subsequently avowed themselves to be Homœopathic Practitioners, remit to the Council to direct copies of this and the foregoing first four Resolutions to be transmitted by the Secretary to all such fellows as are now, or may hereinafter be, known to have acted in this way, trusting that this may lead them to withdraw from the College."

"This Resolution was also unanimously adopted. °

## EDITOR'S NOTES.

**Paralysis of the Forearm from Bicycling.**

Dr. Destot has published in the *Gazette des Hôpitaux* an account of his own experiences. An abstract of the paper appears in a recently published number of the *Neurologisches Centralblatt*. After a long ride he experienced paræsthesiæ in the fourth and fifth fingers, with impaired sensibility and paresis in the interossei, lumbricales, and the adductor pollicis. This paresis was followed by distinct atrophy in the affected muscles. He considers the affection to be the result of pressure upon the branches of the ulnar nerve, aggravated, doubtless, by the vibration occasioned by bad roads. He also considers that predisposing factors existed in the softness of the skin of the hand and in the exhaustion of the muscles and the consequent loss of protection to the nerves lying in or under them.—*Lancet*, May 15, 1897.

**Hernia of the Bladder.**

Although hernia of the bladder was recognised as long ago as 1520, when it was met with by Verdier, yet it has been satisfactorily described only within the last few years. In 1895, fifty-eight cases were collected by Curtis, and in March of this year Dr. Gibson published in the *New York Medical Record* a valuable paper on the subject, containing particulars of forty-five additional cases. From this paper we gather that nearly 25 per cent. of these hernia were of the femoral variety, and that in more than half of the cases the patients were over fifty years of age. The herniated viscus is often not recognised until it has been opened, and in such cases the mortality is high, for even after deducting those deaths which could not be attributed to the wound of the bladder a fatal result followed in 12½ per cent. It is very probable that the condition is by no means so rare as it is usually thought to be. Dr. Gibson also points out the importance of recognising that traction on the sac of a hernia may draw the bladder into the hernial orifice, and so expose it to the risk of being wounded in an operation.—*Lancet*, May 8, 1897.

**The Vitality of the Turks:**

Among the many services done to the Turks by Greece in the last few weeks not the least is to have given them an opportunity of showing how and what they can endure. The *Times* correspondent is much struck with their eagerness to fight and with the difficulty of killing them. He mentions one man whose abdomen was pene-

trated by a bullet, and who not only kept his place in the ranks till the battle ended but marched ten miles afterwards. Another man with three wounds—two in the legs and one in the shoulder—continued on duty twenty-four hours until an officer noticed his condition and sent him to hospital. Sometimes our alcoholism has been associated with our daring and our endurance as cause and effect, but here are qualities of the same sort in a non-alcoholic nation. Our contemporary's correspondent remarks further on the rapidity with which wounds heal, and says that medical men attribute it to the abstemiousness of the Turks. Here we should scarcely be able to match the race whose soldiers are ill clad, ill fed, and who take no alcoholic stimulants.—*Lancet*, May 15, 1897.

### Foreign Body in the Ovary.

C. LIEBMAN, of Trieste (*Centralbl. f. Gynäk.*, No. 16, 1897) recently met with a case of foreign body in the pelvis of an unmarried girl of 19, who had had two children. She complained of pain in the abdomen and back, and of leucorrhœa which had lasted for some weeks. Examination revealed an anteфлекed and enlarged uterus, movable, but causing pain on movement. The left ovary was enlarged, and tender on pressure; and lying between it and the uterus was felt a thin elongated body of a metallic hardness, with its ends embedded in the ovary and the uterus about the level of the os internum. The patient said that some years previously a sewing needle had passed into the skin of her abdomen and been lost. An incision was made *per vaginam* into the pouch of Douglas, and the foreign body, a needle with a broken eye, was safely removed. A thin strip of iodoform gauze was placed in the wound. No bad symptoms followed, and fourteen days later the uterus was of normal consistence, and could be moved without pain, and the left ovary was smaller, and no longer tender on pressure.—*Brit. Med. Jour.*, May 15, 1897.

### Action of Eucaine on the Eye.

DOLGANOFF (*Klinische Monatsbl. f. Augen.*, February, 1897), has employed a 1 per cent. solution of the hydrochlorate, and finds that after the instillation of three drops anæsthesia is complete in about one and a half to two minutes, and lasts five to thirteen minutes, or on an average seven or eight minutes. First the cornea becomes anæsthetic, then the conjunctiva of the globe, and lastly that covering the lids; sensation is recovered in the reverse order. The drops cause great pain, so much so that some of those experimented on could not be persuaded to have a second drop put in. The marked

conjunctival injection may be accompanied by œdema. The pupils for the most part remained unaffected, but in some cases they became contracted, in others slightly dilated. Atropine dilates the pupil more quickly if the eye be previously eucainised. On accommodation eucaine has no effect. In some cases eucaine appears to retard the action of atropine in paralysing the accommodation. Under the influence of eucaine diffusion from the surface of the eye into the anterior chamber (as tested by the colorimetric method) occurs from four to eight times more energetically than without it. The intra-ocular pressure on the whole, falls somewhat. Dolganoff is inclined to think that eucaine has no advantages over cocaine, and will not displace the latter.—*Brit. Med. Jour.*, May 15, 1897.

### Development and Maturation of Graafian Follicles during Pregnancy.

From the microscopic examination of the ovaries of a woman who died in the sixth month of pregnancy, G. Cosentino (*Archivio di Ostet. e Ginec.*, January, 1897) concludes that during gestation the ovaries may be physiologically active, even to the extent of the dehiscence of an ovisac and the escape of an ovule. In this case death occurred quite suddenly from aortic stenosis and incompetence. Graafian follicles in all stages of development were met with, up to the degree of full maturity. In one preparation an ovule with all its parts was seen in the midst of a well-marked discus proligerus; and in another section was an ovisac evidently just before rupture. Two recent corpora lutea also were present, one in each ovary, and that in the right gland was much the larger. If pregnancy had gone on, Cosentino believes that the ovisac in a state of dehiscence would have supplied a third corpus luteum.—*Brit. Med. Jour.*, April 3, 1897.

### Medical Application of the Roentgen Rays.

Rendu (*Sem. Méd.*, January 20th, 1897) reports the case of a man, aged 20, who had an illness beginning with characteristic typhoid symptoms and followed by typical infective pneumonia. Pure cultures of staphylococcus were found in the sputum. After an incomplete defervescence the fever returned, and all the signs of suppuration of the pleura or lung developed. Examination of the sputum, which could only be obtained twice, showed a few tubercle bacilli, but the respective parts played by the staphylococcus and the bacillus could not be determined. Whatever the exact nature of the illness, the patient at the end of six weeks' illness, with hectic temperature,



appeared to be dying. He was then exposed to the Roentgen rays for fifty-five minutes every day. After the fourth exposure the temperature fell by crisis and never rose again. This was accompanied by diuresis and diaphoresis, and the patient was soon quite well. This may have been a coincidence, but was probably not so, since no other change in the treatment or conditions was made. After ten applications erythema and ulceration of the skin appeared, and it is possible that equally marked trophic changes take place in the deeper tissues also. In the discussion which followed the paper, Du Castel thought the successes of the treatment pointed to the staphylococcus being the cause of the illness, since all the attempts to prevent the development of tuberculosis by the same means had hitherto failed.—*Brit. Med. Jour.*, April 3, 1897.

### Therapeutics of Angina Pectoris.

Dr. T. C. Duncan of Chicago thus gives his experience of *Cactus* and *Cratægeus* in the *Homœopathic Recorder* for May, 1897:—

I remember it as well as if it was yesterday of being ushered into a room and found a young man on the bed writhing in agony, clutching at his chest over the heart, unconscious, with at times a convulsive chronic spasm, as if it would be the last—like a wounded animal in the death agony.

I had been told of the case and had had the attacks accurately described, so that I had a clear picture in my mind. I had also said that if there was any truth in Homeopathy that *Cactus* should cure him. The usual treatment for these attacks had been *Chloroform* and hypodermic injections of *Morphia*, I suppose a  $\frac{1}{4}$  gr., as he would be used up for two or three days thereafter.

I hurriedly prepared some of the *Cactus grand.*, 3x and pried open his jaws, and between the contractions he swallowed some. I don't remember whether I had him inhale a little chloroform or not, but in ten minutes he had another spoonful of *Cactus*. The violence of the attack began to subside, and he was soon asleep, resting quietly. He was himself next day, and was rejoiced to know that there was a promising remedy for him.

This attack was precipitated by vaulting over a fence after a child's ball. Any little fright would bring them on. He lived a life of terror to himself and friends. He carried the *Cactus*, taking a dose every two hours. In a week he had another slight attack, but had no more for three months when he wrote me from Massachusetts for the prescription, he having a slight return. His description of the

cardiac feeling was that of a hand clutching the heart. In his unconscious agony he tried to loosen the grasp of the hand. This triumph of Homœopathy, early in my career, did much to establish my confidence. I have met many slight cases since, but never one so severe as the above I treated 30 years ago.

What CRATEGUS May Do.

Mrs. A., a printer came to me complaining of some pain in the side as if it would take her life. She did not have it all the time, only at times, usually the last of the week, when tired. I prescribed *Byronia*, then *Belladonna*, without prompt relief. One Saturday she came with a severe attack, locating the pain with her right hand above and to the left of the stomach. The pulse was strong and forcible. On careful examination I found the heart beat below the normal indicating hypertrophy. I examined the spine, and to the left of the vertebra about two inches, I found a very tender spot (Spinal hyperæmia). She told me that when a girl she had several attacks, and that her own family physician (Dr. Patchen) gave her a remedy that relieved her at once. She had tried several physicians, among them an allopath, who gave hypodermic injections of morphia, without relief. Hot applications sometimes relieved.

I now recognised that I had a case of Angina Pectoris, and that her early attacks were due, I thought, to carrying her heavy brother. Now the attacks come when she becomes tired holding her composing stick; at the same time she became very much flurried, so much so that she had to stop work because she was so confused.

I now gave her a prescription for *Cactus*, but told her I would like to try first a new remedy, giving her *Crategus*, saturating some disks with the tincture (B & T). I directed her to take two disks every hour until relieved, and then less often. If not relieved to take the *Cactus*.

• She returned in a week reporting that she was relieved after the first dose of *Crategus*. More, that hurried, flurried feeling had not troubled her this week. Her face has a parchment skin, and the expression of an anxiety so significant of heart disease was certainly relieved. I have not seen her since.

In my proving of this drug it produced a flurried feeling due, I thought, to the rapid action of the stimulated heart. One prover, a nervous lady medical student, gives to-day in her report "a feeling of quiet and calmness, mentally." This is a secondary effect, for it was preceded by "an unusual rush of blood to the head with a confused feeling."

"One swallow does not make a summer," neither does one case

establish a remedy ; but I think that as *Cactus* has a clearly defined therapeutic range, so it seems that *Crataegus* may prove a valuable addition to our meagre array of heart remedies.

### **Castration and Vasectomy in Hypertrophy of the Prostate.**

Dr. J. W. White, who introduced the operation of castration for hypertrophied prostate, in a lecture recently delivered states that as oöphorectomy was much abused a few years ago, so is this operation now, and that a similar result in the treatment of appendicitis is threatened. He never encouraged the idea that his operation was a universal panacea. If the patient is not very old, retains his sexual power, has sound kidneys, and only a moderate amount of residual urine, the operation is out of the question and only catheterism is required. If pain is marked and resists small doses of bromide, belladonna, phenacetin, &c., that may be an indication for operation. In such cases vasectomy should be selected. If the residual urine reaches twelve ounce and if it does not diminish under catheterism, the dangers from backward pressure on the kidneys, increasing atony of the bladder, and cystitis are so great that vasectomy is again indicated. In patients with larger prostates, with eight or ten ounces of foetid or muco-purulent urine, with frequent micturition, and pain on the introduction of the catheter, some operation—vasectomy, castration, or prostatectomy—is indicated. The younger the patient, the greater the sexual power, the sounder the kidneys, and the better the general health, the more the surgeon should incline towards prostatectomy. If the patient is somewhat older and the sexual power is becoming enfeebled vasectomy is to be chosen. Still greater age, with marked renal disease or greater failure of health, indicates the same operation. If, however, with greater age and distinctly lessened sexual power the renal and general conditions are good, castration promises the most benefit with the least mortality. In the worst cases, in which the prostate is enormous, the cystitis excessive, the bladder dilated and atonied, the retention absolute, the kidneys inefficient, and catheterism difficult and occasionally impossible, any operation involves risk. But this must be taken. Castration in these cases is the best procedure. It will occasionally fail, but often the improvent is marvellous.—*Lancet*, May 8, 1897.

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### **Ozone as a Therapeutic Agent.**

Labbé and Oudin (*Archives d'Electricité Médicale*, December 15th, 1896) report excellent results of the use of ozone in the treatment of

whooping-cough and tuberculosis. In the former case two, three, or four inhalations are given a day, each lasting from ten to fifteen minutes. Owing to the great irritability of the throat in these cases the authors commence by using the ozone produced by the silent discharge from an induction coil giving an inch spark, and by holding the child some distance away from the tube. Later on the patient is brought nearer to the tube, the capacity of which is increased, the power of the coil being at the same time doubled. The effects are rapid diminution in the paroxysms, improvement in the general condition, gain in weight, and increase in oxyhæmoglobin. In tuberculosis the ozonised air is inhaled from the inner of two tubes, between which the silent discharge from a Ruhmkorff coil, giving a 1-inch spark, is passing. The proportion of ozone thus inspired never exceeds the therapeutic dose of 12 parts in one hundred million of air. Two or three sittings, each lasting ten to fifteen minutes, are recommended per diem. In six weeks there is marked increase in hæmoglobin and in the number of red corpuscles, diminution of that of white corpuscles, and especially noticeable gain in weight and respiratory capacity. The number of cases was 37, 7 being in the first stage, 22 in the second, and 8 in the third of the disease. The increase in oxyhæmoglobin varied from 1 to 5 per cent., that of respiratory capacity from 18 to 100 c.cm., averaging 50 c.cm.; the latter was much more marked in the earlier than in the late stages. The increase in weight ranged between 1 lb. to 20 lbs., averaging 6 lbs. In addition to this the cough became infrequent, the expectoration and mucus less abundant, while the dyspnoea and sweats disappeared, and the physical signs cleared up.—Caillé (*ibid.*) confirms Labbé and Ondin's results as regards whooping-cough, and finds ozone very valuable in bad cases of chlorosis, but has seen no benefit from it in 3 cases of apical phthisis. He, however, suggests that its disinfecting properties will render it of much service in the treatment of diphtheria, scarlet fever, and other infectious diseases.—*Brit. Med. Journ.*, April 3, 1897.

### Syphilis of the Heart.

GRASSMANN (*Münch. med. Woch.*, May 4th and 11th, 1897) maintains that when syphilis of the heart is said to be uncommonly rare, this really applies to gummata of the heart. The recognition of cardiac syphilis during life is only rarely possible. A gummatous pericarditis hardly ever occurs, but a pericarditis may be present over a gumma in the cardiac wall. The same applies to a syphilitic

endocarditis. Gummata of the heart vary in size; they may be of microscopic size, or even as large as a chestnut. The gumma may soften, or be converted into a hard mass owing to the proliferation of the interstitial tissue. A result of softening may be an aneurysm of the cardiac wall. The author refers to a case in a woman, aged 38, who died of cardiac insufficiency. There was a large gumma at the apex of the ventricle, an aneurysm filled with clot on the anterior ventricular wall, and an aneurysmal bulging of one mitral cusp towards the auricle. There was also a defect in the ventricular septum, apparently due to the absorption of a gumma. Gummata are usually placed in the left ventricular wall. It would appear that a syphilitic myocarditis may occur without any gummatous formation, and Ehrlich would attribute it to disease of the minute vessels. Cardiac syphilis is a late manifestation of syphilis, but very rarely it has been known to occur within the first two years. Cardiac symptoms may occur in the earlier stages of syphilis, and the author refers to a research of his own not yet completed where varying symptoms of cardiac disturbance were noted in early syphilis. As regards later cardiac syphilis, there are no pathognomonic signs. Symptoms of cardiac insufficiency, with œdema, arrhythmia, dyspnoea, etc., have been noted. Only in the rarest cases have there been symptoms of a typical valvular lesion. Sudden death may occur. Thus, in Mracek's 63 cases, death took place unexpectedly in 21. The presence of cardiac syphilis can be ascertained only in an indirect way, such as an early infection, the presence of other syphilitic manifestations, the ineffectiveness of any other than antisyphilitic treatment. Antisyphilitic treatment cannot remove a fibrous myocarditis or arterial disease, but it may be of value before such lesions have become advanced. Gummata can, of course, be absorbed, but a rapid absorption may even lead to aneurysm of the heart. The treatment should be a mild and extended one, for a vigorous antisyphilitic treatment where gummata are present may be harmful. The author concludes with the statement that syphilis does not spare even the heart.—*Brit. Med. Jour.*, June 5, 1897.

### **The Effect of the Roentgen Rays on the Tubercle Bacillus and on Diphtheria Toxin.**

The question whether the Roentgen rays exert any influence on bacterial life is of considerable interest, and conclusive evidence on at least a part of the subject seems to have been arrived at by Dr. J. Brunton Blaikie, President of the Edinburgh Royal Medical Society. His experiments, published in the current number of the

*Scottish Medical and Surgical Journal*, were as follows. Portions of glycerine agar having been placed in small boxes of aluminium, which is more transparent to the rays than glass is, they were sterilised and inoculated with streak cultures of the tubercle bacillus. At the same time four healthy guinea-pigs were inoculated with twice the minimum lethal dose of diphtheria toxin, and the remainder of the diphtheria toxin was placed in another aluminium box. Three of the boxes containing tubercle cultures, two of the guinea-pigs, and the box with the toxin, were placed under the full influence of the rays generated by a 4-in. spark coil and a good focus Crooke's tube. It was necessary to stop the current occasionally, as otherwise there would have been danger of injuring the tube, and on this account, although the subjects of experiment were placed immediately under the Crooke's tube for a working day of about thirteen hours, they received only eight hours of actual exposure to the rays. Next morning two more guinea-pigs were inoculated with the toxin which had been subjected to the rays. The following was the result of the action of the rays on these guinea-pigs: two that were exposed to the rays after inoculation with twice a lethal dose of toxin lived respectively for 101 and 55 hours after inoculation. Two that were inoculated with twice a lethal dose of toxin, but not exposed to the rays, lived respectively for 120 and 76 hours after inoculation. Two that were inoculated with five times a lethal dose of toxin which had been subjected to the rays lived respectively 45 and 60 hours. From the above results it is seen that the guinea-pigs subjected to the rays lived actually a shorter time than the others, and that the toxin through which the rays passed did not lose its lethal properties. All the guinea-pigs showed the ordinary signs of death from diphtheria toxin, the only difference among them being that the hair of those through which the rays had passed could be pulled out with unusual ease. The cultivations of tubercle bacillus all grew in the ordinary manner, so that they were evidently not affected by the rays.—*Lancet* May 22, 1897.

### Cerebellar Functions.

In a recent number of the Proceedings of the Royal Society a preliminary account appears of some interesting experiments by Dr. Max Löwenthal and Mr. Victor Horsley on the relations between the cerebellar and other centres, especially with reference to the action of antagonistic muscles. These experiments were undertaken because of an observation that when both cerebral hemispheres were

removed, and as a result active extension tonus of the limbs was obtained; faradaic excitation of the upper surface of the cerebellum caused immediate relaxation of such tonus so long as the current was applied, but as soon as the latter was shut off the tonus immediately reestablished. Such an observation, indicating, as it did, a distinct connexion between the cerebellum and the lower centres, made careful examination necessary, and it was found that such an effect was constant provided the tonus was well established, and the effect was not merely an actual relaxation of the triceps, but also a marked contraction of the biceps. Experiments were arranged in which the effect could be graphically recorded, and in the dog and cat it was found that excitation of the left motor cortex and of the left corona radiata produced invariably symmetrical and synchronous contraction of the prepared muscles, biceps and triceps of the right side. Excitation of the crusta on the cut surface before the general tonus was established produced invariably contraction of both biceps and triceps; excitation after it was established, of the left crusta produced in thirteen cases contraction of the biceps and contraction of the triceps, in two contraction of the biceps and relaxation of the triceps, and in one relaxation of the biceps, and contraction of the triceps. Excitation of the cerebellum produced very constant effects. After the tonus established by removal of the cerebellar hemispheres was present excitation of the cerebellum caused a striking and active relaxation of the triceps and an active contraction of the biceps on the same side as that stimulated. In twenty-nine experiments it was found that the muscles of the right arm could be influenced by excitation of both halves of the cerebellum, but the effect was greater on the same side as that stimulated. In five experiments excitation of the left half of the cerebellum evoked relaxation of the biceps on the opposite side. When the tonus produced by removing the cerebral hemispheres was not yet established excitation of the surface of the cerebellum constantly produced atonic contraction of either the triceps or biceps or of both together. Synchronous excitation of the cerebral area for the forelimb and of the cerebellar focus produced, in cases in which the cerebellum is definitely excitable, an addition to the tonus previously elicited from the cortex cerebri. The inquiry is very interesting, and seems likely to throw light upon some of the functions of the cerebellum hitherto so obscure.—*Lancet*, May 29, 1897.

• **An Anticipation of Darwin and Weismann.**

In the April number of *Science Progress* Professor E. P. Poulton calls attention to what he calls a "remarkable anticipation of modern views on evolution." The second volume of Dr. J. C. Prichard's *Researches into the Physical History of Mankind*, 2nd edition, 1826, contains passages which show that Prichard apprehended with perfect clearness that domesticated races of animals and plants have been produced by the selection of man and not by favourable surroundings, careful training, or cultivation. He believed in the possibility of organic evolution, and supported it by excellent arguments which still have the strongest weight to-day. He even recognised the operation of natural selection, although he assigned to it a subordinate rôle. The most important anticipation, however, in Poulton's opinion is the masterly discussion on the transmission of acquired characters, in which the distinction between acquired and inherent or congenital characters is clearly drawn, and many of the most difficult cases are argued fully out, the conclusions reached being those independently arrived at by Professor Weismann half a century later. The fact that all this should have passed unnoticed can only be explained, Mr. Poulton believes, by supposing that this particular edition of Prichard's work was never consulted, but that Darwin and others always went to later editions of the same work. Prichard appears to have been not very confident in the strength of his own conclusions, and an examination of later editions and works leads Professor Poulton to believe that his convictions weakened still further. James Cowles Prichard was born at Ross, in Herefordshire, on February 11th, 1786. He was brought up a member of the Society of Friends, to which body his parents belonged. He studied medicine and took his doctor's degree at Edinburgh. Afterwards he read for a year at Trinity College, Cambridge. He joined the Church of England, and migrated to St. John's College, Oxford, afterwards entering as a commoner at Trinity College in the same University. He does not appear, however, to have sought a degree either at Oxford or at Cambridge. In 1810 he settled at Bristol as a physician. Among his many great achievements in anthropology, says Professor G. B. Tyler, was "the proof that the Celtic nations are allied by language with the Slavonian, German, and Pelasgian (Greek and Latin), thus forming a fourth European branch of the Asiatic stock (which would now be called Indo-European or Aryan)." This treatise on the subject, entitled *Eastern Origin of the Celtic Nations*, appeared in 1831. Mr. Augustin Prichard, of Bristol, an old and



highly respected member of the British Medical Association, on the Council of which he sat for several years, is, we believe, a son of the author of the *Physical History of Mankind*.—*Brit. Med. Jour.*, June 5, 1897.

### Diet for Diabetics.

Von Noorden (Reprint) from *Die Heilkunde*, October and November, 1896) thinks that by not testing the metabolic powers in each case many patients are at present placed on an unnecessarily strict diet who would be better for the moderate use of carbohydrates. Other patients, on the contrary, would derive advantage from an even stricter diet than they have at present. In order that the proper diet for each patient may be ascertained, he advocates a few weeks' residence in a special establishment where the different test diets can be more easily tried and the urine for the twenty-four hours regularly examined. In ordinary cases a test diet for one day may be adopted containing no carbohydrates except 100 g. white bread (about 60 g. of starch); but if the urine after this contains no sugar, larger quantities of white bread must be tried. If the urine after the test diet contains sugar, a diet should be chosen similar to the test diet, but containing more fat and no bread. If after about six days of the latter (strict) diet the urine still contains sugar, the case is a grave one and demands a careful limitation of the kinds of food. If, however, the urine then contains no sugar, the capacity of the individual for carbohydrate metabolism must be still further tested, and not only for starch but also for other kinds of carbohydrates. Some diabetics, for instance, can stand milk sugar better, others worse, than the starch of bread; the same is found with the sugar of raw fruit. This exact examination of every diabetic case was introduced by the late Professor Külz. In cases when the 200 to 400 g. carbohydrates—the daily amount for a healthy man—cannot be taken, they must be replaced by an equivalent of fat and albuminous material. The nutritive equivalent of 200 g. carbohydrates in meat is about 800 to 1,000 g. in fat, about 88 g.; therefore, it is evident that carbohydrates cannot be replaced in the diabetic dietary by meat only, but must be replaced by meat—which is usually combined with more or less fat—and fat together. The author regards the following as contra-indications to a very nitrogenous diet: (1) Considerable albuminuria; (2) old age; (3) gouty complications; and (4) the condition of some patients in which much nitrogenous food increases the glycosuria, more than a little carbohydrate does. In the latter class of cases Naunyn and von Mering

interpose a regular fasting day, but the author prefers to confine the diet for one or more days to green vegetables prepared with fat, and then gradually again to increase the amount of albuminous food. Fat is a most essential article of diet for diabetics, and much of the doctor's success depends on the way in which he administers it so as to make it palatable to the patient. A proper amount and quality of alcohol Von Noorden believes to be of great use to diabetics, for alcohol makes the digestion of fat easier; and in some cases, he thinks, if given boldly, alcohol may ward off threatening diabetic coma. The opinion that a diabetic patient is "too weak" for "strict" antidiabetic diet has still often to be combated, even amongst medical men. Weakness is rather an indication than a contra-indication for strict diet. A diet may be "strict," and yet unsuitable for a particular patient; it is the unsuitableness, not the strictness of the diet, which may do harm. The real contra-indications (to some extent) for "strict" diet are old age, nephritis, severe gout, and tendency to diarrhoea, but even here there are exceptions to the rule. It is in the endeavour to ascertain what the best diet is for any particular case that a short residence in a special establishment is of so great utility. The author includes a careful classification of articles of diet in their relation to diabetes. —*Brit. Med. Journ.*, April 3, 1898.

### A New Diphtheria Antitoxin.

A recent number of the *Archives des Sciences Biologiques*, issued by the Imperial Institute of Experimental Medicine in St. Petersburg, contains a highly important communication from Dr. Smirnow, on a new method of obtaining a diphtheria antitoxin of great therapeutic value. For the last three years Dr. Smirnow has been working on this subject, and the present memoir places experiments, which before were only in a tentative stage, on what now appears to be a sound and practical basis.

As is well known, the preparation of curative diphtheria serum involves not only great expense, but also a great deal of time; the raising of a horse's serum to the requisite pitch of immunising properties requiring many weeks. Dr. Smirnow has been endeavouring to produce an antitoxin, the preparation of which is less costly and less cumbersome. The method adopted was that of electrolysis, and in the first instance ordinary serum was electrolysed; but as this led to nothing, virulent diphtheria broth cultures were substituted for serum; and the results obtained were highly encouraging. These electrolysed cultures were found to contain an antitoxin of great efficacy, and, even when employed in smaller quantities than the thera-

peutic serum, it entirely protected animals from the effects of diphtheria poison. "Le traitement par cette antitoxine marche d'une manière remarquablement satisfaisante : malgré les périodes les plus avancées de la maladie, il suffit d'un demi ou d'un centimètre cube pour que l'animal supporte sa maladie même sans grande élévation de température et presque sans aucune réaction à l'endroit de l'infection." So writes Dr. Smirnow ; and, indeed, the experiments which he cites with this antitoxin fully justify this favourable verdict. Still more recently it has been employed on dogs, which of all animals are perhaps the most susceptible to diphtheria poison ; this being proved by the difficulty which is experienced in immunising them for the production of curative serum. Dr. Smirnow states that a dog weighing from eighteen to twenty pounds, inoculated subcutaneously with 0.5 c.c. of virulent diphtheria broth cultures, usually dies in two or two and a half days after it has been infected. The protective treatment of a purposely infected dog was commenced one day after inoculation, and from 3 to 5 c.c. of the electrolytic antitoxin sufficed to save the animal's life. This quantity Dr. Smirnow thinks might probably be lessened, and yet not interfere with its remedial action. For the technical details of the methods recommended by Dr. Smirnow for the production of this artificial antitoxin, we must refer the reader to the original memoir, to be found in vol. iv. No. 5, 1896, of the *Petersburg Archives* already mentioned. It would appear that in itself the antitoxin is quite harmless, for ordinary guinea-pigs can stand with impunity a dose ten times and more as strong as that required for remedial purposes. As regards the effective quantity for injection, it appears that in the initial stages of the disease there is no difference in the amount required of the serum and Smirnow-antitoxin respectively ; but as the disease progresses, whilst yielding to reduced doses of antitoxin serum. Its preparation is incomparably simpler, and with a good supply of toxic diphtheria broth in hand, the antitoxin can be produced in a day, whilst, involving far less expense, it can be supplied at a much more reasonable rate. Dr. Smirnow has at least shown that the preparation of a specific remedy against diphtheria is not the exclusive monopoly of the animal organism, but can be elaborated artificially without the assistance of living mechanism. The author is to be congratulated upon the highly successful results which he has so far achieved ; and if the therapeutic value of this electrolytic antitoxin is shown to be as great for man as it has undoubtedly proved itself to be for animals, then indeed Dr. Smirnow has made a distinct and important step forward in the domain of preventive medicine.—*Nature*, April 22, 1897.

## CLINICAL RECORD.

## Indian.

## A Case of Dysentery.

## REPORTED BY THE FATHER OF THE PATIENT.

August 3rd, 1896. My second child, Uma Prasanna, two years old, was suffering from an attack of dysentery with fever for the last two days in my native village a few miles North of Calcutta. The temperature in the axilla varied from 101.2 to 102.6. The aggravation was towards evening and night. The stools, which were about 30 in number during day and night, at first consisted of blood and mucus mixed with feces, but the fecal matter gradually disappeared and slime took its place. The child had no appetite but craved for large quantities of cold water several times. On the first day of my treatment I gave 3 doses of *Acon.* 3x.

4th. Finding no benefit from *Acon.* I gave 2 doses of *Merc. cor.* 6x with the result that the blood as well as the number of stools considerably lessened. The temperature also came down to a little over 100 and remained steady.

5th. The stools were now not more than 10 or 12 in number during day and night, and the quantity of blood was distinctly less; but the patient suffered much from pains about the umbilicus and lower abdomen. Thinking that the pain might be due to an overdose of *Merc. cor.* no medicine was given this day, but 3 linseed poultices were applied over the abdomen during the day. This had a most salutary effect. The little patient began to sleep after the application of the first poultice. In the evening the child was so well in all respects that I congratulated myself on what I thought to be the successful termination of the case.

6th. The child became very bad to-day. Lying by his mother, who was overpowered with sleep from fatigue of previous nights' watchings, he had sucked her breast during almost the whole night. The result was that the dysentery and fever both increased. The temperature, which had fallen almost to 99, rose this day at noon to 101. The child became very restless and thirsty and passed about 50 or 60 stools during day and night. The stools were now frothy, mucous, mostly greenish, but sometimes reddish and whitish. The extremities were slightly cold. A dose of *Puls.* 6 was given towards evening, but it produced no effect.

7th. Gave *Ipec.* 6x, 4 times during the day, a dose every 4 hours, and barley water for diet.

8th. No better, excepting a slight fall of temp. to 100.6. Much

suffering from pain in the lower abdomen before and during stool. Gave *Colocynth* 6x, 3 doses, which also made no impression.

9th. Consulted an experienced homœopathic physician (a graduate of the Calcutta Medical College) who was then practising in our village. He prescribed *Merc. sol.* 6x trit., 3 times a day, and substituted arrowroot for barley water.

10th. No better. The consulting physician gave *Chamomilla* 6x, every 4 hours, and ordered Gandhal soup besides arrowroot.

11th. The child's face, lips and extremities looked very pale and bloodless. I became very much alarmed at the continual discharge of mucus and slime. Stopping all medicine I went in the evening to Dr. Sircar for favour of advice. After attentively listening to the history of the case, Dr. Sircar observed that it was essentially a case of constipation and it would very likely be benefited by *Nux v.* A dose of *Nux v.* 6x and plain sago as diet were given to the child on my return home at night.

The child began to improve from the very first dose of *Nux v.* In two days\* the number of stools was reduced to 8 or 10 during 24 hours, and fecal matter made its appearance in them. The medicine was continued for some days and the child's improvement was markedly rapid, as he came round from this rather severe attack of dysentery in a fortnight, without the intervention of any other remedy.

### Foreign.

*Cases of Neuralgia of the Face* cured by Magnesia Phos.\*

By CHARLES C. HUFF, M.D., HOMESTEAD, PA.

CASE I. Miss B.; a tall, slender, dark-haired woman, about 23 years old. Has been suffering with facial neuralgia for two weeks past. It is located on the right side of the face, involving the superior maxillary region, and running up the side of the head and face, but not involving the eye or its appendages. Patient sitting up in bed, head encased in hot, dry flannels, fearing to move lest the cold air may strike her face. Describes the pains as cutting, piercing, stabbing; not steady, but darting like lightning when they do come. She is very nervous, and is with some difficulty restrained when the pain is severe. Had been treated for past two weeks by a member of the "scientific" school, and had gotten no relief, apparently getting worse. My prescription was four powders of *mag. phos.*, 30x, in trituration, and that was all the medicine she received, as the pain had entirely gone when I called the next day.

\* Read before the Homœopathic Medical Society of Allegheny County, Pa., *South of Clinical Medicine*, February, 1897.

CASE II. Mr. S.; a small, undersized man, with dark complexion, dark hair, and very dark eyes; a hard worker, and not very well nourished. Presented himself at the office, complaining of a very agonizing pain in his face, on the right side, seemingly involving the malar bone. While waiting for me he had a severe paroxysm, and the suffering of the man was intense. He described it as boring, like an auger, and after that came pains that he could not describe, except that they were like shocks. *Mag. phos.* 30x, was given, and he went to work the next day and has not been troubled since.

CASE III. Miss C.; a tall, slender woman, inclined to angularity; brown hair, and somewhat sallow; unmarried, and about 35 years old. She has a severe attack of neuralgia in the inferior maxillary of the right side, this being very common with her. The face is swollen and very hard; sensitive to the touch, and very susceptible to cold air. The pain is sharp, darting, piercing, and changing from one part to another; can get some relief from hot, dry applications. I gave her *mag. phos.*, 30x, and called to see her next day. The pain was all gone, the swelling very much reduced, and a marked improvement was manifest. The treatment was continued, and the external conditions were all removed. She complained of a tooth that gave her some trouble, saying that it was very loose, and when she pressed down on it there was a throbbing sensation, with a sore feeling. The patient was given *silicea*, cm., and this removed all the remaining trouble, and she has since remained free from all neuralgic attacks.

CASE IV. Mrs. Mc.; a slender, delicate-looking brunette; very dark hair; married? pregnant four months. While suffering from an attack of influenza she had, as a complication, an attack of right-sided neuralgia, located over the eye, and involving the upper eyelid, which would twitch and quiver when the pain was severe; when lightning like shocks from the supra-orbital region down into the upper lid were very frequent. *Mag. phos.*, 30x, relieved this case in a very short time.

I have also found this remedy very useful in disorders of the female sexual organs. In menstrual colic, where the pains are characteristic, knife-like, cutting, stabbing, piercing, darting like streaks of lightning, and changing place rapidly, you will find this remedy very useful. If you can positively determine that the pains are ovarian, then *mag. phos.*, will help you; but if, on the contrary, the broad ligament is involved, you had better select another remedy. *Chondri-fuge* is a close analogue of *mag. phos.*—*The Hahnemannian Monthly*, May 1897.

*Cases of Insanity treated with Thyroid Feeding.*

By DR. GEORGE S. ADAMS, M.D.

SUPERINTENDENT, WESTBOROUGH INSANE HOSPITAL, U.S.

*(New England Medical Gazette, May 1897.)*

CASE I. Mrs. A. B., on December 1, 1893, gave birth to twins. One month later she became maniacal, the mania going on to extreme exhaustion, from which she rallied by the end of March, and became much better, although her friends reported that following this mental attack she was never quite well. In September, 1894, she went to a private hospital in Boston, and underwent an operation for the repair of the perineum, which was badly lacerated at childbirth, from which operation she made a good recovery. The first of November, 1894, she became again very much excited, and on November 4 was taken to the McLean Asylum. She continued acutely excited during her entire hospital residence there, and was discharged March 31 as "not improved," and diagnosed as a case of terminal dementia. Admitted to the Westborough Insane Hospital by transfer April 1, apparently demented, she was destructive and violent, and required nearly constant mechanical restraint. Thyroid feeding was begun April 10, with an increase of temperature of about one degree. Patient became gradually more quiet, and on May 16 the dose of thyroid was increased to three grains. June 25, the patient talked with the physician rationally for the first time, but still had active hallucinations of hearing and strong delusions.

Following this rational interval, patient became again somewhat excited, and on July 12 the dose of the thyroid was increased to four grains each night. From this time on patient gained steadily, and September 9 the dose of the thyroid was decreased to two grains, and soon afterward discontinued. Patient was discharged October 1 as recovered, and has remained entirely well to the present time.

CASE II. The following case is of interest because of the bad family history and the long continuance of a habit which makes the prognosis generally unfavorable:—

Miss A. C., admitted to the Westborough Insane Hospital, February, 1896. At that time duration of insanity was given as one year. Her father had been insane and at the Westborough Insane Hospital, and one brother was then insane and at another insane hospital. Patient had also been addicted to the habit of masturbation for a long time. She was given the rest treatment, and careful homoeopathic medication, but without real mental improvement, although

the physical condition was improved. September 1, 1896, the patient was given two grains of Armour's Desiccated Thyroid each night. This was continued for six weeks, at the end of which time she was found to be much better mentally, and also improved physically, and was allowed to do some work. Improvement continued, and at Thanksgiving time she was permitted to go home on trial. She returned to the hospital for a visit a few days ago, and appeared to have remained in good mental health.

I give the history of a case that had apparently passed into secondary dementia: Mrs. A. D., aged forty-two. Was admitted to the Westborough Insane Hospital, February 20, 1894, as a case of acute mania. She had no heredity of insanity, and the supposed cause of disease was given as overwork. The only peculiarity observed in the patient was that she was almost entirely bald,—a condition uncommon in women. In July, 1895, a year and a half after her admission, patient was given each night two grains of Armour's Desiccated Thyroid. In September the amount was increased to three grains, and continued one month. As has been observed in other cases, mental improvement was not noticed till after the use of the thyroid was discontinued, and although it was slow, it continued until about six months ago, when she was considered to be entirely well. She still remains at the hospital, waiting a change in the home conditions, when she will be taken out by her daughter.

One result following the use of the thyroid was a growth of hair over the part of the head formerly bald. In this regard it resembles cases of myxœdema, but there were present no other symptoms of that disease.

CASE III. I now give the history of a male patient who appeared to recover under the homœopathic use of thyroid. Mr. A. D., aged twenty-five years, a naval officer, was admitted to the Westborough Insane Hospital, November, 1895. The assigned duration of insanity was four months, but it appeared that he had been peculiar for some time previous, and he came to the hospital because his family wished homœopathic treatment. He had been examined by experts before coming, and their prognosis had been that he would not recover.

When admitted patient was somewhat excited, and acted as if somewhat under the influence of some strong delusion. Was not willing to converse with physicians, and certainly appeared like a case of paranoia. He was put to bed and given rest treatment and careful medication, but five months later was not in any way im-



proved. Taking his symptoms ~~new~~ for some indications for a change of medicine, I observed that his pulse was full and frequent, and that there was a marked perspiration over the entire body and limbs, and his nurse reported that this had been constant for some time. I had desiccated thyroid prepared in the third decimal trituration, and gave him frequent doses. He began to improve in two or three days, and the improvement rapidly went on to recovery, so that he was able to return to duty in June, and a letter recently received shows him to be at the present time in the enjoyment of perfect mental health.

One case of this kind does not prove anything, and the young man might have recovered under continued rest treatment and proper medication, but the improvement followed so rapidly after beginning the thyroid that it seems to me at least probable that it had much to do with his recovery.

While it is possible that some of the cases that recovered after the use of thyroid might have recovered without such treatment, the chances were against such recovery; and I believe that while it cannot affect mental diseases of degenerative type; it will help functional cases that under the usual treatment fail to get well as they should.

At present I offer no theory as to how thyroid feeding acts, but am satisfied that in certain cases it has been of much benefit, and will continue to benefit others. Further experience will undoubtedly enable us to discriminate better the cases that can be helped.

### *Cases of Paralysis in Children.*

BY N. B. DELAMATER, M.D.

*Professor of Mental and Nervous Diseases, Chicago Homeopathic Medical College and Hospital, Chicago, Ill.*

CASE 1. Marnie B—, age two years. American parents. Family history reveals no neuropathic tendency. Nothing occurred to mother during pregnancy that could affect the child. No accident during labor, nor was the labor prolonged; on the contrary was an easy, short, natural labor.

Can not learn of any accident to the child at any time nor any exposure.

Nine months previous to reporting at my clinic, had awakened one morning with absolute paralysis of left leg. Absolutely healthy previously and subsequently. In a few days began to move thigh, the motility of the thigh gradually increased until in two weeks seemed

about normal, but no motion below knee at all. A physical examination revealed nothing as to head, eyes, nose or throat, chest, abdomen or genitals, abnormal. The left thigh was one-half inch smaller than the right, muscles seemed somewhat more flabby, below the knee there was a very decided atrophy of all muscles, superficial reflexus nearly normal above, but lost below the knee.

Microscopical examination of muscle tissue taken from three different points on foot and leg revealed no degeneration.

The test with the current, failed to show any contraction to the Faradic or to an upward galvanic, but a downward galvanic current from eighteen Hill gravity cells produced fair contraction in all the leg muscles.

This is a typical case of poliomyelitis anterior acuta. The only *specially marked feature* being the entire absence of either injury or neuropathic tendency. I followed my usual course in prescribing the current. In this case, eighteen cells downward, slow interruptions within the metallic circuit three times per week diminishing the number of cells as indicated by the ability to secure contraction with a less number. As this was a recent case, and in a very young child I made no other prescription. There was gradual steady improvement for six months when the Faradic current was substituted for the galvanic, because contraction could be obtained with a modern Faradic current. In one year there was not a vestige of the trouble left so far as I could detect.

• The result in this case helped to emphasize two points: particularly, first, that the reaction to the current is the best guide on which to base a prognosis. Whenever muscle contraction can be produced in the paralyzed muscle in a case of poliomyelitis anterior acuta, the prognosis is favorable provided the parents and the doctor are faithful and persistent.

Second, the rule for the direction of the current, and the same rule holds good for either the galvanic or the Faradic current. Apply in the direction with which you can get contraction with the least current.

Much has been said and written about the Faradic current to the effect that it makes no difference in which direction it is applied. I am ready to freely admit that in many cases this is true, but I am equally certain that in paralysis where it is used for curative purposes and not simply as an exerciser the direction of the current is very important.

CASE 2. Matilda S—, two years and four months of age, American.

Family history shows a marked neuropathic element on father's side in conjunction with dissipation of grandfather.

An entire absence of anything during this pregnancy and labor that could possibly have any influence. The child has been remarkably healthy, not having any digestive disturbances during dentition. Mother says she has never been sick a day, until three weeks previous to reporting to my clinic. Was then attacked with a simple fever, quite marked; during sleep would start and jump a good deal. After about two days it was suddenly noticed that the child could not walk. On careful examination it was found that she could not move either leg; seemed an absolute paraplegia. In the course of a couple of days, slight improvement by motion returning to some extent in the thigh and from that for about a week, there was gradual increase of motion in one set of muscles after another and an increasing motility in all, for a few days now there seems to have been no change. We find now that every muscle except the tibialis anticus seems to be performing its functions normally. This muscle seems to have very little power and is seemingly slightly atrophied.

A careful physical examination reveals absolutely nothing to produce any reflex trouble, nor any evidence of organic lesion outside the history and present condition of this muscle. As the case was so recent no microscopical muscle examination was made. The electrical test gave good reaction in the paralyzed muscle with a quite mild Faradic upward current, while the downward required a very decided greater current.

This case was considered as a simple congestion in anterior horn causing sufficient mechanical pressure to interfere with function. I said there was a seeming atrophy of the muscle, I mean just this: that while on very careful inspection and manipulation the muscle seemed a trifle less in size than its opposite, yet the difference was so slight that I could not say positively there was anything more than simple relaxation. The patient was put on *strychnia* 3x trituration, a two grain powder weighed out and put up in powders, four times per day. (In giving *strychnia* below the 6x, I am always careful to have the size of the powders exact.) Improvement was noticed in two days and continued right along till at the end of three weeks motion and tone was absolutely normal.

In this case there was no cause that I could learn except the neuropathic tendency and, possibly, reflex irritation from tooth formation, there was not, however, on the closest scrutiny, any evidence of irritation or swelling of gums or of a tooth forming under the gum. The

marked fever preceding the paralysis is quite common in cases where we have decided and destructive inflammation in the anterior horns. Has not in my experience been common in these mild or functional cases, unless some source of reflex irritation was present.

The query in my own mind at the time was and still is, would this case have recovered as completely or as quickly had there been no treatment? I am inclined to the belief that it would. But the fact that in true poliomyelitis, every day adds to the gravity of the prognosis always impels me to commence active treatment at once and continue as long as possible or till there is absolute full return of motion, tone and size of muscle.

I have been called to many cases on the very first day of the attack and have always received credit for being able to produce improvement very promptly, but while I commence and continue the treatment I always insist to the parents that the prompt and rapid results are simply natural and to be expected; that they would take place if there was no treatment at all. The general practitioner will find this a wise plan to follow, for in the true inflammatory cases, when this stage of improvement has passed, the future progress will be so slow that the parents and friends will be sure to know the facts, and feel that the doctor either did not know what to expect or that he was not entirely honest. I did not use the current in this case, simply because I did not consider it necessary, this conclusion being based on the mildness of the current necessary to produce contraction in the paralyzed muscle.

CASE 3. Annie H., two years and four months of age, American. The family history shows nothing except a general nervousness in both father and mother, and a possible tubercular taint, but remote and uncertain. Nothing occurred during pregnancy or labor out of the ordinary. There was no appearance of eruption at time of or subsequent to birth, cannot find any possible indication of hereditary syphilis.

When about one year of age had a convulsion, was cutting teeth at the time, and the attack was attributed to stomach disturbance, no indications of anything of a convulsive tendency since. Is seemingly an unusually healthy and robust child. Is not a nervous child. Eats and sleeps well, is not irritable, is fully as bright as the average.

Has never used her legs as freely as other children, they are not strong, seems to be simply lack of strength. Physical examination is absolutely negative. She can not support her body in standing or walking, at all well, this seems to be the cause of a tendency to stagger

which is quite noticeable when she walks, or tries to. There is no deformity, no atrophy, no lowered temperature, no loss of reflexes. No possible source of reflex irritation. No history of any injury. The weakness of the legs was noticed previous to the convulsion. Was brought to the clinic for paralysis, had been diagnosed by four physicians as a very mild infantile paralysis. Whether the inference ought to be drawn that these physicians meant poliomyelitis anterior acuta which is given as a synonym for infantile paralysis, I leave to you to decide.

I gave as my opinion that for some reason unknown to me there was simply a muscular weakness. I was unable to make out even a case in which there was probable a slow development of the cerebral motor centers for the legs, a not very uncommon occurrence. I prescribed massage and the Faradic current daily. No attention was paid to the direction of the current. I wanted it simply for exercise and stimulation of the circulation, simply to help increase the local muscle nutrition. I also advised the parents to take pains at all times to induce the child to try to walk firmly, for the purpose of directing the child's mind to those particular sets of muscles, and in this way assist inducing additional nutrient stimulation locally. The improvement was very rapid and in four months' time the legs were as strong as any part of the body.

It is my purpose in this short paper to present three distinct types of cases that the general practitioner is likely to meet at any time, and in which they may with a reasonable degree of assurance expect to cure.

There is no need of sending these cases to a specialist unless it be simply for the purpose of satisfying themselves that there is no more serious trouble. In this connection, however, I must warn every practitioner never to neglect active, faithful and intelligent treatment at the earliest possible moment, never tell the parents, "oh, the child will outgrow it." Never allow the parents or some friends or even an unexperienced careless physician to conduct or carry out the treatment, see to it personally that, thorough careful, persistent work is done, and continued until a cure is completed. Of the more severe or more chronic cases, or of the many cases of paralysis occurring in infants and young children from other causes this paper has nothing to do.—*North American Journal of Homoeopathy*, April, 1897.

**THERAPEUTICS OF CONSTIPATION, DIARRHŒA,  
DYSENTERY, AND CHOLERA.  
146. LEDUM PALUSTRE.**

**Constipation :**

1. Constipation for several days, with scanty urine.
2. St. hard, scanty, later than usual.

**Diarrhœa :**

1. Fæcal D., with mucus.
2. Pasty st., like D., without suffering.
3. D., with anxiety and cold hands.

**Dysentery :**

1. St. mixed with blood.
2. Colic (cutting), with flow of blood from anus.

**Rectum and Anus :**

1. Dull stitches in rectum.
2. Fine stitches in rectum.

**General symptoms :**

1. Intoxication, giddiness and emptiness in head. Feels intoxicated when walking in open air. Discontentment with fellow-creatures amounting to misanthropy.
2. Vertigo, head tends to sink backwards. Stupor of whole head as in vertigo.
3. Headache, as from a blow or knock. A false step causes the brain to be painfully shaken.
4. Pimples and boils on forehead. Pale face, but not chilly.
5. Considerable dilatation of pupils. Eyelids gummed together, with pain or swelling.
6. Roaring in ears as from wind. Deafness, as if ears were stopped up with cotton.
7. Epistaxis; bloody nasal mucus.
8. Great thirst for cold liquids, especially water; or continual absence of thirst.
9. Bitter taste in mouth. Bad musty taste. Waterbrash, with colic. Stitches and burning in tongue, especially tip. Feeling of dryness of mouth and palate, with thirst for cold water, without heat.
10. No hunger, and on eating anything feels as if has eaten too much, is oppressed and feels sick. Nausea in morning. Every time he spits, becomes sick and inclined to vomit. While eating, drawing and aching in scrobiculus cordis. On eating quickly, contractive pain in sternum. Dislike to usual tobacco. Frequent recurring hiccough. When walking in open air, nausea with sweat all over body.
11. Belly-ache as in dysentery; as if diarrhœa were about to come on, from navel to anus; as if bowels were contused and weakened after action of a strong purgative. Rumbling in abd. with frequent emission of flatus. Wandering cuttings in abd., aggravated by drawing in of the abdominal walls.
12. He must urinate often, and copiously every time, even at night. Diminished secretion and discharge of urine. Urine scanty, with constipation. Urine frequently retained, and

- will not pass ; after passing it, there is sticking in urethra. Urine reddish (when scanty); straw-yellow (when copious).
13. Excessive and constant erections. Nocturnal emissions of bloody or watery semen. Menses increased, every 14 days.
  14. Tight, painful respiration. Profuse expectoration of bright-red blood, with violent cough. On coughing, she holds her breath as if she would suffocate. Asthmatic constriction of chest, worse by moving and talking.
  15. Trembling of hands when grasping and moving them. Obstinate swelling of feet. Ball of big toe soft, swollen, and painful when treading. He cannot bear heat of bed on account of heat and burning in limbs.
  16. Sleeplessness with restlessness and tossing about. Dreams uneasy, of great misfortunes ; voluptuous, lascivious.
  17. Chilliness without subsequent heat ; or heat all over without thirst. Perspiration profuse, even hair of head was wet ; of a bad, sour smell.
  18. All symptoms worse during rest. Joint pains better from movement, worse from wine. Cannot bear to be covered up.

**Remarks :** LEDUM has never yet been used in our school for bowel complaints ; though from the symptoms given above it may be useful in CONSTIPATION with hard, scanty stool and *scanty* urine ; in DIARRHŒA when there is much mucus with the loose stools ; and even in DYSENTERY when the stools are mixed up with much blood. The characteristic Ledum colic, both in diarrhœa and dysentery, extends from the umbilicus to the anus. LEDUM, like PULSATILLA, SEPIA, and other drugs, has aversion to the accustomed smoking, and a very peculiar nausea which comes on every time the prover spits. These symptoms, as well as those under 18, might help in its selection.

#### 147. LEPTANDRA.

##### Constipation :

1. No st. 2nd, 4th, and 5th days.
2. St. first hard, *black* and *lumpy*, afterwards soft and mushy.

##### Diarrhœa :

1. St., first part natural, second soft and mushy.
2. St., soft, mushy, very *fœtid*, followed by very weak feeling in bowels and rectum.
3. St., soft, papescent, *yellow*, preceded by pain in umbilical region.
4. St., very profuse, *black*, about the consistence of cream, with undigested potatoes in it (during pain in bowels, 8 hours after 2nd dose, 4th day).
5. St., very profuse, *black*, *fœtid*, that ran a stream from bowels (during abdominal pain as above).
6. St., which ran like a stream from bowels, followed by very severe cutting pains in intestines.
7. D. of *clay-colored* evacuations.

##### Cholera :

1. Frequent, watery sts., that ran like streams, very *fœtid*,

with large quantities of mucus in it, preceded by great distress in stom. and small intestines, followed by severe pain in hypogastric or umbilical region.

2. St., profuse, watery, mixed with mucus; another similar, with part natural fœces, very fœtid; another, with large quantities of mucus in it, followed by sharp, cutting pains and great distress in umbilical region, with weak and faint feeling. The sts. could not be retained.

### **Dysentery :**

1. Mucous, bloody st., mixed with shred-like substances, often pure blood is discharged.

### **Aggravation :**

1. Morning; forenoon; afternoon; after midnight.
2. From vegetables, especially potatoes.

### **Before St. :**

1. Great distress in stom. and small intestines, with urging and inability to retain st.
2. Constant, dull, burning, aching distress in whole abd., with frequent pain and rumbling, and urging to st.
3. Pain in umbilical region.

### **After St. :**

1. Very weak feeling in abd. and rectum.
2. Severe cutting pains in intestines; also in umbilicus.

### **General Symptoms :**

1. Gloomy and irritable. Dizzy while walking.
2. Severe headache, with frequent pains in bowels; walking makes it intolerable.
3. Tongue coated yellow, especially along the centre. Taste, flat, unpleasant, especially in morning.
4. Great hunger, with great pain in epigastric region, continuing till breakfast. Food rises very sour. Nausea, with deathly faintness. Constant, burning, aching distress in stom. and liver. Dull aching pain in liver extending to spine, most felt in gall-bladder.
5. Awful pain in umbilical and hypogastric regions, aggravated by drinking cold water. Constant, dull, and aching pain in right inguinal region passing down to right testicle.
6. Urine rather scanty, very red, neutral, does not affect Litmus paper.
7. Dull aching, or very constant distress with sharp pains by spells in lumbar region.
8. Both wrists ache and are very lame, in morning; the left one the most, the pain lasting till noon.
9. Quite weary and languid, can hardly walk.
10. Severe attack of *Jaundice*, accompanied with diarrhœa of clay-colored evacuations, headache, and symptoms usually seen in such cases. Skin hot and dry, with frequent pain in bowels.

**Remarks :** Dr. Hale has, we think, correctly divided the *catharsis* of *LEPTANDRA* into the following four stages. Diarrhœa and dysentery,



corresponding to these, have been cured by it. The homœopathicity, of course, should be completed by a reference to the symptoms.

(1) Discharge of black, thick, tarlike, fœtid substances.

(2) Thinner, brownish, often fœtid evacuations.

(3) Stool of mixed mucus, flocculent, and watery matters, with yellow bile.

(4) Mucous, bloody stool, mixed with shred-like substances, often pure blood is discharged.

He gives the following cases of diarrhœa cured with *Leptandra*, reported to him by Dr. G. W. Barnes :—

**CASE I.**—During the progress of a tedious case of post-scarlatinal follicular enterocolitis, associated with a condition of general anasarca, occurring in a little boy of six years, the details of which I will not trouble you with, there occurred a condition of the alvine evacuations corresponding very beautifully with your proving of *Leptandra*. The stools, three or four a day, were profuse, dark brown, almost black, of a mushy consistence, and highly offensive odor. There was difficulty in retaining the stool; he must go immediately. There was sharp pain preceding the stool and relief afterwards, but increased weakness. He usually went to sleep soon after stool. Other remedies were required to complete the cure; but *Leptandra*, 3rd trituration, very promptly changed the stool to a normal appearance and frequency, and produced a satisfactory amelioration generally.

**CASE II.**—Captain H.—, Ohio National Guards, had suffered nearly three months with camp diarrhœa, and had been for the greater part of that time in hospital. During a tedious journey from Washington his case became aggravated, and on his arrival at home he was hardly able to stand upon his feet. He was emaciated, his features haggard and jaundiced; his stools previously mixed with undigested food, were now muco-purulent and bloody, quite frequent and attended with tenesmus and cutting pains low down in the bowels. Cold water taken internally produced a sense of weight at the stomach, cutting in the bowels, and a disposition to stool. There was a state bordering on ulceration, and it was the opinion of his hospital surgeon that that condition existed.

Some amelioration followed the administration of *Mercurius Cor.*, 6th and 30th, but under the influence of *Leptandra*, 3rd trituration, improvement was prompt and steady, and in two weeks his stools were natural in quality and frequency, and he was soon well.

Dr. Hale gives also the following case reported by Dr. William Fry of New York :—

It was a case of *dysentery* of nearly a month's standing, having been brought on after a sudden change of climate. The following were the most characteristic symptoms of the case: mental suffering; dizziness and headache; chills, followed by fever; pain and uneasiness in the bowels; nausea, and a constant flow of saliva from the mouth during the chill; urine high-colored, and passed in small quantities; soreness of the rectum; hemorrhoids; painful dragging and stinging pains in the rectum; bowels bound and alternated every three or four days by a setting-in of diarrhœa, the passages consisting of fecal matter resembling raw or boiled beef after having been pounded fine, with an admixture of mucus and an intolerable fœtid smell. The desire to stool was in the morning, and continued about an hour, during which time there were four or five passages followed by tenesmus of the rectum and a feeling as if something was passing out. I cured it with two doses of the *Leptandra*—one powder of the 1st centesimal trituration in the evening and another in the morning, after having failed to get any effects from such remedies as *Arsenicum*, *Colocynth*, *Carbo v.*, *Mercurius*, &c.

Might not *LEPTANDRA* be useful in cases of cholera where the profuse watery stools are very fœtid, mixed with large quantities of mucus, run out from the anus in streams, and are preceded by great distress in stomach and small intestines and followed by pain in hypogastric or umbilical region?

148. LILIUM TIGRINUM.

**Constipation :**

1. C. from 3rd to 5th day.
2. St., dark and hard, followed by heat in rectum and anus, and slight pains in abd.

**Diarrhœa :**

1. First effect, D., appearing the 3rd day, continuing daily throughout the proving. It occurred directly after dinner, was sudden and peremptory ; discharges copious and *bilious*, with burning of rectum and anus, and severe tenesmus, followed by extreme exhaustion.
2. *Morning D.*, with increased smarting and irritation of the passage, griping in bowels, and rasping sensation at anus and rectum after the passage, followed by an acrid smarting sensation about the passage, for about 2 months.
3. Alternately a solid and a loose st., several during the day, and a constant feeling as though she must have a st., resulting from a sensation as if something were pushing against anterior wall of rectum at and two or three inches above anus. St., every half hour, lumpy, small, diarrhœic, with wind ; constant tenesmus, (she could sit at st. for ever) and burning in urethra ; all this continued for several weeks. *Helonias* 200 afforded relief.
4. Large, dark-colored *very offensive* discharge.
5. Bloating feeling in abdomen after a meal, continuing after a diarrhœic discharge.

**Dysentery :**

1. Dejection, quite bloody.

**Aggravation :**

1. Morning, on rising ; forenoon.
2. After eating, nausea.
3. Night, all symptoms.

**Amelioration :**

1. Fresh air, most symptoms.
2. Warm room, all symptoms.

**Before St. :**

1. Sudden and peremptory urging.
2. Griping pain in bowels ; with restless, weary feeling.
3. Soreness of abdominal muscles.

**During St. :**

1. Burning of rectum and anus, and severe tenesmus.
2. Passage of flatus.
3. Soreness of abdominal muscles diminishes.
4. Severe downward pressure at bowels and anus when at st., but without passing any but a small quantity of urine.

**After St. :**

1. Flatulency, and feeling of bloatedness of abd.
2. Griping in bowels, and rasping sensation in rectum and anus.
3. Acrid, smarting sensation in anus, with great weakness and trembling.
4. Cramp in both legs and feet.

**Rectum and Anus :**

1. Pressure on rectum and bladder, with constant desire for st.
2. Anus stiff and painful, with a tight painful drawing through forehead and eyes.

**General Symptoms :**

1. Excitement, weeping ; feeling as if she were two persons ; as if she were going to be crazy. Aversion to being alone, and yet no dread felt.
2. Depression of spirits ; constant inclination to weeping, with fearfulness, and apprehension of suffering from some terrible internal disease ; an apprehension of moral obliquity, in alternation with sexual excitement.
3. Constant hurried feeling as of imperative duties and utter inability to perform them (during sexual excitement).
4. Head so muddled that he feared to lecture, nevertheless the more he spoke, the more he could concentrate his mind upon his subject.
5. Entire loss of appetite. Aversion especially to bread and coffee. Increased desire for meat. Great hunger as it were in *back*, extending up to occiput and over vertex ; ate enormously, yet she felt she should starve to death.. The usual cigar is nauseous, and produces water brash. Much thirst, drinking often and much. Considerable nausea, especially after eating. Vomiting at first of chyme, having no appearance of undigested food, then of mucus colored yellow, last of blood. Eructations. Sense of unusual fullness, and distension of stomach.
6. Unusual distension of abd. Dragging down sensation of the whole abdominal contents, extending to organs of chest, feeling greatly need of support. Soreness and trembling sensation of abd.
7. Continual pressure on bladder, wants to urinate all the time passing but little followed by smarting burning, and tenesmus. Burning, hot urine, seeming more like boiling oil than water. Urine copious dark-colored ; clear but scanty ; scanty, thick, milky ; copious, with red sediment ; retained
8. Tendency to prolapse and ante-version of the uterus. Bearing down, with sensation of heavy weight and pressure in uterine region, as if whole contents would press out through vagina. Severe neuralgia of uterus. Sharp pain in ovarian regions, especially the left. Menses reduced to one-fourth of natural flow, followed by profuse bright yellow leucorrhœa, so acrid as to excoriate the whole perinæum. Sexual desire so violently roused that provef (female) said, "I am afraid of myself, I am possessed of a demon."
9. Hard breathing, frequent desire to take a long breath, sighing. Dull pressive or sharp and quick pain in left side, apparently about, and with fluttering of, the heart. Suddenly roused from sleep by pain in left side, as if heart were violently grasped.

10. Very sleepy at other than the sleeping hours. Has not slept several nights, must rise often to urinate. Queer, half-waking dreams, with burning heat the whole night. Unpleasant, disagreeable, frightful and laborious dreams.
11. Cold hands and feet, especially when excited; perspiration so profuse that they were constantly wet with cold, clammy sweat. Burning heat in palms and soles extending thence up and over limbs, with constant desire for a cool place in bed, or to put them out into cool air.

**Remarks:** Dr. Hale says nothing of the use of this drug in bowel complaints. According to Dr. Bell "the value of *LILIUM TIG.* in morning diarrhœa, associated with, or dependent upon, prolapsus uteri and ovarian irritation, has been confirmed by abundant clinical observation." The stool symptoms are characteristic enough to justify its trial even when the association or dependence, here spoken of, is not present. It may be used in constipation when the dark, hard stools are followed by heat in rectum and anus; in diarrhœa when the stools occur chiefly in the morning with the peculiarities given above; and in dysentery when the stools are quite bloody.

#### 149. LINUM CATHARTICUM.

##### **Constipation:**

1. Bowels constipated for several days. No motion for three days.
2. Bowels continued costive ever since leaving off the medicine; hard sts., once every two or three days.
3. Constipation followed by alternate relaxation and costiveness.
4. Motions hard and dry, though copious.
5. Difficult st., with pressing down of rectum; fæces covered with epithelial-like shreds, resembling worms; gelatinous mucus in form of rolls.
6. Scanty stool, with colic and rumbling.

##### **Diarrhœa:**

1. Purging, with colic.
2. Several motions of slender-formed fæces.
3. Sts. free; considerable urgency, necessity to obey call instant; rectum seemed to have little grasp of the fæces, which passed as if pushed out of the colon.
4. Very loose, *bright-yellow*, mucous st., preceded by uneasiness in abd.
5. Much griping, and great urgency to get to st. quickly; immediately after dinner (at 1-30 p.m.) a very loose *bright-yellow* motion; at 9 p.m. griping recurred, and quick, scouring motion, with copious urine.
6. St., soft and bilious.
7. Urgent call after breakfast; rectum felt very distended; copious, soft motion, well mixed with bile.
8. Fæculent st., of slender coils, sinking to bottom of utensil.
9. Frequent desire to evacuate bowels, a mere trace of fæces, with a little mucus.
10. A fluid motion, with tenesmus.

**Aggravation :**

1. After breakfast ; after dinner.    2. After evening.

**Before St. :**

1. Urging.    2. Uneasiness in abd.    3. Gripping and colicky pains.

**During St. :**

1. Pressing down of rectum.    2. Tenesmus.
3. Copious urination.    4. Rumbling in abd.

**After St. :**

1. Smarting at anus.    2. Feeling as if more should be evacuated.

**Rectum and Anus :**

1. Pressing at the rectum, as if swollen (at night).
2. Smarting-stinging at anus, as if piles were coming on.

**General Symptoms :**

1. Dulness and depression ; or irritability. Congestive headache, especially left ; better in open air, after eating, from *Sulph.* after failure of *Bell.*
2. Singing in left ear, some hours in evening.
3. Nose quite stopped or fluent coryza.
4. Tongue foul, deeply furred. Dryness of mouth, without thirst. Foul, clammy taste : bilious taste.
5. Catarrhal symptoms in throat and larynx ; hawking of yellow mucus, sometimes tinged with blood.
6. Impaired appetite. Eructations tasting of bile all day. Rising of food in evening. Sick after supper.
7. Gripping pains about umbilicus. Much rumbling in bowels all day ; passed a good deal of flatus. Occasional gripes and distension of abd., troublesome especially after food. Colicky pains followed by purging and tenesmus with gripping.
8. Plentiful urination during st., and towards night. Urine straw-colored, strong-smelling, rather scanty.
9. Diminished sexual desire. Anaphrodisia. Catamenia delayed.
10. Voice hoarse. Cough, especially in open air. Expectoration frothy, yellow. Great pain in chest, aggravated by movement, and on deep inspiration.
11. Debility at night. Dreams of travelling, of cholera (in others).

**Remarks :** LINUM may be useful in both constipation and diarrhœa ; in constipation, when the stools are hard and dry but copious and large, or when the stools are difficult, covered with mucus like worms, or when the mucus is in the form of rolls ; in diarrhœa when the urgency is so great that the rectum seems to have little power of retention, the stools though soft are either large or in slender coils. The stools are bilious, bright-yellow.

## Cleanings from Contemporary Literature.

### A REVIEW OF REVIEWS.

*"De Minimis non curat."*

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IN the paper on "The Logical Basis of the Law of Similars," published in the November number of this *Journal*, the claim was made, that Hahnemann's doctrine respecting the curative powers of high dilutions, had been wonderfully corroborated by recent botanical experiments of a highly scientific character. No special theory of Hahnemann's doctrine was upheld. It was held substantially that Naegeli's experiments on plants were similar to those of Hahnemann on human beings, and that similar evidences, only more positive, had been obtained by Naegeli, respecting the effects of high dilutions on living plant organisms. This is substantially the whole contention of that part of the paper in question.

The claims of the paper were based upon a review of the experiments of Naegeli and others by the *New York Therapeutic Review*, a journal of a very scientific character, and devoted wholly to minute research.

Will the reader please to read carefully the following from that journal?

"Within a few years most interesting researches have been conducted upon the effects of water containing infinitesimal amounts of toxic salts upon the growth of some of the lower vegetable organisms. Loew and Rokorny's researches upon the reaction of living protoplasm in the presence of nitrate of silver were the starting point of these studies. Raullin succeeded in showing that nitrate of silver in the proportion of one part in 1,600,000 parts of water would inhibit the growth of *Aspergillus Niger*, and still further, discovered that this organism would not live in water placed within a silver vessel although no silver can be detected in the fluid with the most sensitive reagents. Carl von Naegeli, the late distinguished botanist, was led to pursue these clues still further and, after his death, a paper was found among his effects which reveals the most astounding facts. These are analyzed at length in a paper by de Varigny in the *Revue Scientifique*. Naegeli's pupils have gone over these experiments again and ascertained their accuracy. They have been published at length by *Schwendener of Zurich*."

Here we have a few good authorities: Loew, Rokorny, Raullin, Carl von Naegeli, de Varigny, and the *Revue Scientifique*. And here we have the statement that "*Aspergillus Niger* would not live in water placed within a silver vessel although no silver can be detected in the fluid with the most sensitive reagents."

And again the same authority says: "Naegeli then endeavored to find what substances could render water toxic. . . He discovered that many

substances *hitherto reputed insoluble in water*, such as the metals, gold, silver, copper, iron, mercury, lead and zinc, *by their mere presence in water possessed this property.*"

We have all learned from a paper by Dr. Wesselhoef, published in this *Journal* for February, that a Berlin editor has also claimed for these experiments that they substantiate Hahnemann's views respecting high dilutions.

Now in his paper Dr. Wesselhoef takes no notice of the unqualified statements emphasized in the above quotations, but instead confines himself to a very small part of the evidence, especially that relating to gold and copper. Did the experiments prove subsequently that these other statements above quoted were erroneous also, and the experiments illusory? If so, we ought to have been informed of the fact. If not, then the views advanced in the paper on "Logical Basis of the Law of Similars," still stand, true and unrefuted.

The fact that water in a silver basin was proved toxic, in spite of the failure of every test to prove that it contained a solution of the silver, remains uncontradicted as yet by anybody, even by Dr. Wesselhoef, and his readers will naturally infer, that he had not the evidence to contradict it or it would have been forthcoming.

The fact that several other metals, reputed as insoluble in water, did in like manner poison, "*by their mere presence in the water,*" is not contradicted by anything that Dr. Wesselhoef has adduced, with the possible exception of gold and platina.

The failure of gold alone to poison the algæ does not disprove Hahnemann's doctrine, so long as it remains evident that other metals did poison them. Copper is as good as gold for the purpose of making and working a high dilution. And even if gold will not poison one organism, that is no evidence that it will not affect another. If it can be established by such experiments as Naegeli's that any metal in high dilution—say the thirtieth decimal—can cause the speedy death of any living organism, it would not be ingenuous to deny that the fact perfectly sustains Hahnemann.

We have had presented to us the testimony of three Reviews, all affirming Hahnemann's correctness. We have seen their evidences. We have now presented what is practically a fourth Review, a fourth authority, and although the aim of this one is to show that others are all wrong, a little careful study will show that this testimony is probably the strongest of all in favor of the higher dilutions of Hahnemann.

We must examine this fourth reviewer's testimony somewhat critically. The evidence on the other side being so unequivocal and strong, there must be more reason for the discrepancy.

What can be more clear and positive than this statement from the *Therapeutic Review*? "He found that death occurred in three or four minutes in a solution of 1-1,000,000,000,000,000. . . . Was the distilled water at fault? No; for within it the *Spirogyra* thrived.

Corrosive sublimate gave even more pronounced results: the organism died in a solution of 1-1,000,000,000,000,000,000,000,000." This is a statement which the fourth reviewer neither explains nor contradicts. He simply remarks that the paper read before the Institute errs in calling this "one million million-millionths." A glance at the paper will show that it designated the number properly, making it one million-times greater than the above charge would indicate.

Now that statement respecting the effect of corrosive sublimate in the twenty-fourth decimal dilution is unequivocal. Dr. Wesselhoeft does not clearly say that Naegeli afterward discovered it to be illusory—rather that the copper test was proved to be in some measure illusory, and it is left us to infer that the same was true of the other tests. At the same time Dr. Wesselhoeft assures his readers that the nitrate of silver did kill the algæ in our twenty-fourth dilution; and that corrosive sublimate did likewise in the forty-second decimal dilution. That is to say, the dilution was indeed made and the algæ died. This was all right so long as there was a possible molecule in the water—up to about the eighth dilution; but beyond that it must be wrong. The statement is, "As the molecular force was reduced to nothing after the twenty-fourth dilution, the experimenter judged at once that his preconceived idea of the transference of a toxic influence from the mercury or the nitrate of silver to the water was erroneous, and that the destructive cause must be sought for elsewhere, and was found."

Considering that we do not know that there is such a "material substratum" as a molecule, and do not know its size if it exists, and do not know what a "toxic influence" is, this whole pronouncement itself seems founded on a "preconceived" and very insecure idea.

But it may be accepted, nevertheless, for the sake of argument, and the reader may watch its logical development.

And in the first place it is of great importance to note that this idea will not work without some outside support. It will not do at all with the existing state of chemical knowledge. A most wonderful discovery had first to be made, viz.: "that many metals were soluble in water to a minute degree."

*How was this discovered?* This is one of the most crucial points of the whole affair. Was this assumed because the plant died when the metal was put into the water? Or was the gold coin with copper alloy weighed before and after being placed in the water, and found to have lost weight? Was the "solution" proved by chemical reagents? Was the copper seen in the water by the microscope, or proved to be there by the spectroscope? Or was the coin seen to be corroded by the separation of the copper from the gold? Or was the whole theory assumed, because the therapeutic or toxic evidence would have everything its way? And because it seemed too unreasonable in the preconceived view of the absence of the molecule?

Dr. Wesselhoeft owes it to his readers to state the steps in this process, one after another, fully and clearly. Probably he can do so. Certainly he has not done so as yet.



But we will accept his theory as proven, and go over his facts as related, and then declare our utter inability to accept his statement as proof of Hahnemann's error.

Having showed that pure copper is slightly soluble in pure water, the next step is another equally rare discovery, viz.: that "metals impart oligodynamic properties to glass vessels." But this statement is very properly qualified by another, which shows that the glass vessels are not affected at all, but that molecules of the dissolved copper adhere to their walls, where they are again and again given off to the water, until it has been renewed four times and the glasses rinsed and scrubbed with a brush.

Now these adherent molecules explain exactly why the supposed septilionic dilution poisoned the alga. The solution was not diluted to the twenty-fourth decimal or beyond, because these adherent molecules kept constantly *saturating* the water.

Now supposing that we piece together the disconnected processes heretofore described, and endeavor to arrive at a clearly defined notion of what they prove respecting Hahnemann's high dilutions.

Let us first take a quart of pure water, put it in a cubic dish of glass, four inches on the side, and in it place a living colony of alga, say weighing one ounce. Into this vessel so equipped we now introduce a ten dollar gold coin. This is soluble "*to a minute degree*."

Right here we pause. What does a "minute degree" mean? We are not informed. It is admitted that this "minute degree" poisons the alga. Then, since the very point in question is high dilutions, why not tell us *how much* of the copper in this gold piece is dissolved? Otherwise how can we tell what is our first dilution?

But this vital knowledge being withheld from us, we are compelled to make an estimate.

The coin weighs about 500 grains. One-tenth is copper. So there are fifty grains of copper present in the dish—but *not in the water*. Only a molecular shaving of the coin is touched by the water. Only from this can the copper be separated from the gold. Now how much is so dissolved? Considering the fact that gold coins which have laid in water for a hundred years have still had their full banking value, and the further fact that chemistry had not before discovered the solubility of copper, we must make our estimate very "minute" indeed. How much shall we say? To avoid even the appearance of niggardliness, let us admit the solution of *one millionth of a grain*.

To make the calculation as plain as possible, let us call the dissolved grain a minim, the minim a drop. Then we have one millionth of a drop in one quart of water, that is about 15,000 drops; or finally *one drop in fifteen billions*.

This is a generous calculation in every feature, and it makes Naegeli's first dilution rather above Hahnemann's tenth decimal.

This enormous difference between the dilution of Naegeli and of Hahnemann must not be forgotten. It arises clearly from the fact that in

Hahnemann's dilutions we begin with a numerical relation of mass to mass, whereas in Naegeli's case we begin with the relation of mass to molecule.

In the course of further dilution, however, a difference emerges of a very important character. Dr. Wesselhoft assumes the molecule. This is not necessarily the truth. We are at liberty to assume quantity merely, an interminate divisibility. Quantity is the truth, whether the same be molecular or not.

But assuming the molecule, so as to keep in accord with Dr. Wesselhoft, let us pass on to the next dilution. The water containing the first dilution of Naegeli is now to be thrown out, the vessel rinsed and scrubbed with a brush, four times in succession.

Now the vital question is, what proportion for the first dilution remains adherent to the sides of the vessel? Again all is conjecture. No definite answer is given us. Within certain limits we can rely upon an estimate. This is indeed the only method in molecular physics. Let us assume with Dr. Wesselhoft that the copper molecules are dissolved and "saturate" the whole of the first dilution, but retain their identity, not combining with the aqueous molecules. It is then a question of molar quantity. How much of the "saturated" water remained in the vessel after above treatment?

May we again allow the possible presence of one millionth of a drop? We do so, and obtain by an easy calculation the result that *Naegeli's second dilution is a little higher than Hahnemann's twentieth decimal.*

Continuing the process, which anyone may figure for himself, it will be found that the dilutions of Naegeli, prepared after the formula of Dr. Wesselhoft, compare with those of Hahnemann as follow:

|                        |        |                           |
|------------------------|--------|---------------------------|
| Naegeli's <i>first</i> | equals | Hahnemann's <i>tenth.</i> |
| " <i>second</i>        | "      | " <i>twentieth.</i>       |
| " <i>third</i>         | "      | " <i>thirtieth.</i>       |

and so on indefinitely.

To anyone who thinks only of molar physics such calculations are a stumbling-block, and to the man of big things only, they are foolishness. But to molecular science they are the wisdom of Nature and the power of Nature. But in this acceptance of Dr. Wesselhoft's process and his explanation of it, a great strain has been borne.

We have had to accept the solubility of copper in water, and that was a great deal. But the solubility of copper in mass is conceivable. It is when we reach Dr. Wesselhoft's conception of *the solubility of the molecule* that the great difficulty is felt. Yet just this is a necessity for the working out of the process. We ignored its bearings on the actual dilution thereby attained. Had we not done so, numbers would have failed to have expressed the result. For in the first dilution we had the solution of some molecules from the mass. But in the second, *we had a solution of molecules of molecules*, and so on to the last.

For we are not told that the water was rendered toxic by the "saturation" of it from the molecules adherent to the glass?

How, otherwise, on the theory of a "material substrate," could the alga

be poisoned by these molecules? Only by extraordinary chance could it happen, that an alga cell could come in contact with a molecule on the glass. And how could such contact hurt the alga cell, unless the latter absorbed something from the molecule? And how could it absorb anything but the molecule itself in solution? But it was not an odd cell or two that was poisoned. The whole plant—the whole colony of cells died. All must have come in contact with the molecular copper in some way. Was the copper molecule transformed into something else, by chemical interchange with the algæ or the water, or did it continue to be itself, and could it really be recovered and identified as the copper molecule after the destruction of the algæ? And, finally, since the molecule in the case of copper is the same as the atom, is it not regarded as impossible, in molecular physics, to reduce or divide this atom by any means whatever, either by chemism or mechanism? Does not the “atom” mean the “indivisible”?

Nevertheless, we will agree with Dr. Wesselhoeft that the molecule also is soluble, although it is a very recent and great discovery; and working his statement out on that supposition, it seems that he, more than any of the writers concerned, has corroborated the highest of Hahnemann's high dilutions.

Dr. Wesselhoeft's molecule *must* be soluble, because in no other way can we communicate it to the algæ—in no other way can it render the water “toxic.” But this involves another difficulty. Were we not led to understand that the molecules adhering to the sides of the vessel were finally emptied out, rinsed out, *brushed* out—not *dissolved* out? We were not shown that at each successive dilution the molecules grew individually smaller, but rather that they were cleared out mechanically and whole, a few at a time. In fact, molecular science can admit only this method of getting rid of the noxious molecule. It knows nothing of the solution of atoms or copper molecules.

It is here likewise to be noted that the granting of the solution of one millionth of a grain of copper to make Naegeli's first dilution, is almost a gratuity to Dr. Wesselhoeft. No science of chemistry would allow him one septillionth, under the circumstances, or grant him anything but a bare possibility of *any* solution unless after, perhaps, a decade of soaking.

Of course the solubility of the molecule is still less admissible.

The case then seems to stand as follows:

1. All authorities, from Hahnemann to Wesselhoeft, agree as to the apparent facts.
2. One declares these apparent facts to have been misinterpreted—to be in part, illusory.
3. He explains the illusion.
4. He does so by assuming two marvelous discoveries—the solution of copper in water, and the solution of the molecule.
5. He finally demonstrates that the plants were poisoned by a dilution certainly as high as Hahnemann's fortieth, and most probably, as high as

Hahnemann's two hundredth decimal dilution, possibly by a dilution indefinitely higher.

6. It is the most reasonable inference that they died from molecular motion, imparted from the molecules to the water and from the water to the plant.

7. This shows how water may be "made toxic" and yet not have in it any "poison" in solution—just as a "live wire" is "toxic" when its molecular activity is so intense as to impart molar motion to a train of cars, or to kill by a bare touch.

There is here no molar motions of the wires, no solution of it, and no transfer of its molecules. But there is a transfer of molecular motion.

8. All things, without exception, have a molecular as well as a molar constitution. Under proper conditions the phenomena of either class display themselves, as molecular or molar motions respectively. They need not be confounded. The same chemical elements are a food or a poison, according to the difference in molecular grouping and the consequent difference in molecular motion. The same elements are a food to one creature and a poison to another, according to the difference of the two creatures in the molecular constitution of their organic elements. Mere quantity of material substrate does not explain everything nor does its absence imply all absence of activity—for molecular motion may be transmitted through proper media—just as molar motion is transmitted no one knows how. Finally, Hahnemann observed this peculiar activity in medicine—this oligodynamia—he was the first to declare it. He announced the fact, adjuring any fixed theory respecting it. Naegeli corroborated Hahnemann, and Dr. Wesselhoeft has proved the correctness of Naegeli.—*North American Journal of Homœopathy*, May, 1897.

## REMARKS ON THE EFFECTS OF ANHELONIUM LEWINII (THE MESCAL BUTTON).

*Read before the American Neurological Society.*

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THE history of the use of mescal by the Indians of New Mexico is very well known in the United States, and especially through the valuable papers of Dr. Prentiss, of Washington, D.C.

These so interested me that I asked him to favour me with some of the extract. Profiting by his kindness, I made a trial of the drug on May 24th, 1896, by taking it as I shall now relate.

At 12 noon of a busy morning I took fully  $1\frac{1}{2}$  drachm of an extract of which each drachm represented one mescal button. I had in a half-hour a sense of great gastric discomfort, and later of distension. At 1 P.M. I took a little over a drachm. Between 2 and 3 P.M. I noted my face as flushed; the pupils were dilated midway, the pulse 80 and strong. I had a slight sense of exhilaration, a tendency to talk, and now and then I

misplaced a word. The knee jerk and station were normal. Between 2 and 4 o'clock I had outside of my house two consultations, and saw several patients. I observed that with a pleasing sense of languor there was an unusual amount of physical endurance. I went rather quietly, taking two stairs at a time and without pause, to the fourth storey of an hotel, and did not feel oppressed or short of breath. This is akin to the experience, as I learn, of the mescal-eating Indians, and to that of many white men.

Meanwhile my stomach was more uncomfortable, and I saw the first evidence of any change in my colour records. On closing my eyes (while in my carriage), I held longer than usual any bright object just seen. As to this, however, I am not as sure as I am concerning the later phenomena. About 4. 10 P.M. I drove home, and after taking half an ounce of extract in three doses I lay on a lounge and read, becoming steadily more conscious, at first of a left frontal pain (not severe) and soon after of a dull occipital ache felt on both sides and at or about the occipital bosses. Yawning at times, sleepy, deliciously at languid ease, I was clearly in "the land where it is always afternoon." At 4.30 P.M., rising to make notes, I became aware that a transparent, violet haze was about my pen point, a tint so delicate as at times to seem doubtfully existent.

At this stage of the mescal intoxication I had a certain sense of the things about me as having a more positive existence than usual. It is not easy to define what I mean, and at the time I searched my vocabulary for phrase or word which should fitly state my feeling. It was vain.

At this time, also, I had a decisive impression that I was more competent in mind than in my every-day moods. I seemed to be sure of victoriously dealing with problems. This state of mind may be easily matched in the condition of some men when pretty far gone in alcohol intoxication. My own mood was gently flattering a mere consciousness of power, with meanwhile absolute control of every faculty. I wrote a long letter of advice dealing with a rather doubtful diagnosis, and on reading it over was able to see that it was neither better nor worse than my average letter. Yet the sense of increased ability was so notable that, liking to test it, and with common-sense disbelief in its flattery, I took up a certain paper on psychology, which a week before I had laid down in despair. I grieve to say that it was less to be comprehended than ever. My ignorance would have remained bliss had I not made the experiment. I next tried to do a complicated sum, but soon discovered that my ordinary inefficiency as to figures was not really increased.

A mood is like a climate and cannot be reasoned with. I continued to have for some two hours this elated sense of superiority. I was for this while in that condition in which some people permanently abide.

The further test of writing a few lines of verse was tried. I found there was much effort needed. I lay down again about 5.20, observing that the outer space field seemed to be smoky. Just at this time, my eyes being closed, I began to see tiny points of light, like stars or fire flies, which came and went in a moment. My palms were now tingling, my face a little flushed. About 5.40 the star points became many, and then

I began to observe something like fragments of stained glass windows. The glass was not very brilliant, but the setting, which was irregular in form, seemed to be made of incessantly flowing sparkles of pale silver, now going here, now there, to and fro, like, as I thought, the inexplicable rush and stay and reflux of the circulation seen through a lens. These window patterns were like fragments coming into view and fading.

Hoping for still better things in the way of colour, I went upstairs, lay down in a darkened room and waited. In a few minutes the silver stars were seen again, and later I found that these always preceded any other more remarkable visions.

This display which for an enchanted two hours followed was such as I find it hopeless to describe in language which shall convey to others the beauty and splendour of what I saw. I shall limit myself to a statement of a certain number of the more definite visions thus projected on the screen of consciousness.

During these two hours I was generally wide awake. I was comfortable, save as to certain gastric conditions, which were not so severe as to distract attention. Time passed with little sense for me of its passage. I was critically attentive, watchful, interested, and curious, making all the time mental notes for future use.

Especially at the close of my experience I must, I think, have been for a while in the peculiar interval between the waking state and that of sleep—the “*præformitum*”—the time when we are apt to dream half-controlled stories; but as to this I am not very sure. As a rule, I was on guard with every power of observation and reflection in full activity.

My first vivid show of mescal colour effects came quickly. I saw the stars, and then, of a sudden, here and there delicate floating films of colour—usually delightful neutral purples and pinks. These came and went—now here, now there. Then an abrupt rush of countless points of white light swept across the field of view, as if the unseen millions of the Milky Way were to flow a sparkling river before the eye. In a minute this was over and the field was dark. Then I began to see zigzag lines of very bright colours, like those seen in some megrims. I tried to fix the place and relation of these tints, but the changes were such as to baffle me. One was an arch of angled lines of red and green, but of what else I could not determine. It was in rapid, what I may call minute, motion.

The tints of intense green and red shifted and altered, and soon were seen no more. Here, again, was the wonderful loveliness of swelling clouds of more vivid colours gone before I could name them, and, sometimes rising from the lower field, and very swiftly altering in colour tones from pale purples and rose to greys, with now and then a bar of level green or orange intense as lightning and as momentary.

When I opened my eyes all was gone at once. Closing them I began after a long interval to see for the first time definite objects associated with colours. The stars sparkled and passed away. A white spear of grey

stone grew up to huge height, and became a tall, richly finished Gothic tower of very elaborate and definite design, with many rather worn statues standing in the doorways or on stone brackets. As I gazed every projecting angle, cornice, and even the face of the stones at their joinings were by degrees covered or hung with clusters of what seemed to be huge precious stones, but uncut, some being more like masses of transparent fruit. These were green, purple, red, and orange: never clear yellow and never blue. All seemed to possess an interior light, and to give the faintest idea of the perfectly satisfying intensity and purity of these gorgeous colour-fruits is quite beyond my power. All the colours I have ever beheld are dull as compared to these.

As I looked, and it lasted long, the tower became of a fine mouse hue, and everywhere the vast pendant masses of emerald green, ruby reds, and orange began to drip a slow rain of colours. All this while nothing was at rest a moment. The balls of colour moved tremulously. The tints became dull, and then, at-once, past belief vivid; the architectural lines were all active with shifting tints. The figures moving shook the long hanging lines of living light, and then, in an instant, all was dark.

After an endless display of less beautiful marvels I saw that which deeply impressed me. An edge of a huge cliff seem to project over a gulf of unseen depth. My viewless enchanter set on the brink a huge bird claw of stone. Above, from the stem or leg, hung a fragment of some stuff. This began to unroll and float out to a distance which seemed to me to represent Time as well as immensity of Space. Here were miles of rippled purples, half transparent, and of ineffable beauty. Now and then soft golden clouds floated from these folds, or a great shimmer went over the whole of rolling purples, and things, like green birds, fell from it, fluttering down into the gulf below. Next, I saw clusters of stopes hanging in masses from the claw toes, as it seemed to me miles of them, down far below into the underworld of the black gulf.

This was the most distinct of my visions. Incautiously I opened my eyes, and it was gone. A little later I saw interlaced and numberless hoops in the air all spinning swiftly and all loaded with threaded jewels or with masses of colour in long ropes of clustered balls. I began to wonder why I saw no opals, and some minutes after each of these circles, which looked like a boy's hoop, became huge opals; if I should say fluid opals it would best describe what was however like nothing earthly.

I set myself later to seeing if I could conjure figures, for so far I had seen nothing human in form, nor any which seemed alive. I had no luck at this, but a long while after I saw what seemed a shop with apothecaries' bottles, but of such splendour green, red, purple, as are not outside of the pharmacies of fairy land.

On the left wall was pinned by the tail a brown worm of perhaps a hundred feet long. It was slowly rotating, like a catherine wheel, nor did it seem loathly. As it turned, long green and red tentacles fell this way and that. On a bench near by two little dwarfs, made, it seemed, of

leather, were blowing through long glass pipes of green tint, which seemed to me to be alive, so intensely, vitally green were they. But it were vain to find in words what will describe these colours. Either they seemed strangely solid, or to possess vitality. They still linger visibly in my memory, and left the feeling that I had seen among them colours unknown to my experience.

Their variety and strange juxtapositions were indeed fascinating for one to whom colour is more than it is to most men; nor is it possible to describe the hundredth of what I saw. I was at last conscious of the fact that at moments I was almost asleep, and then wide awake. In one of these magic moments I saw my last vision and the strangest. I heard what appeared to be approaching rhythmical sounds, and then saw a beach, which I knew to be that of Newport. On this, with a great noise, which lasted but a moment, rolled in out of darkness wave on wave. These as they came were liquid splendours huge and threatening, of wonderfully pure green, or red or deep purple, once only deep orange, and with no trace of foam. These water hills of colour broke on the beach with myriads of lights of the same tint as the wave. This lasted some time, and while it did so I got back to more distinct consciousness, and wished the beautiful terror of these huge mounds of colour would continue.

A knock at my door caused me to open my eyes, and I lost whatever of wonder might have come after.

After dinner I ceased to be able to see any further display of interest. Now and then a purple or pink fragment appeared, but that was all. For a day after I noted the fact that my visions could be easily recalled by a memorial effort, but with less and less sharpness.

These shows are expensive. For two days I had headache, and for one day a smart attack of gastric distress. This came after the first dose, and was most uncomfortable. The experience, however, was worth one such headache and indigestion, but was not worth a second.

Dr. Prentiss and others describe mescal as causing insomnia. My first experience with the tincture was made early in the morning. I became deeply flushed by noon, but had no visions. I felt drowsy and slept very well the following night. The extract used, as stated, did make me sleepless up to 4 A.M., but neither restless nor uneasy.

Some interesting reflections are suggested by my experience with this vision-breeding drug, mescal. The effect on me was more or less like what is experienced in some ophthalmic migraines, and even my most brilliant visions can be matched by those reported in 1887, and by some to be found in Dr. de Schweinitz's more recent paper.

The following extract from my own paper will sufficiently illustrate what I desire to point out. It concerns one of the several cases of migraine with visions which I reported:

"The symptoms of onset are these: frontal and occipital sense of tension lessening towards night, good sleep follows: next day he awakes with some pain between the eyes and slight photophobia. The second night, or the morning after it, he is aware of being flushed, but has no cerebral throbbing. In a few moments the lids feel as if pulled towards the inner canthus, and fortification zigzags appear, with next partial blurring of vision, which seems in twenty minutes to efface the lines and include more or less of the field. The lines seem to be projected one inch from the eye, and flash, and come and go with shimmering prismatic colours. The dimming of vision lasts some twenty minutes, and leaves him with slight vertigo and a feeling of fulness of the head, but pain always begins over the eye which has distinct vision, and of this he is sure. It increases as the eyesight clears, and is about one inch above the eye. Exertion, stooping, anxiety increase it. The pain lasts from one to three hours, and ceases without nausea. When it occurs over the left eye he has sometimes slight aphasia for five minutes, and in youth this was more severe and more lasting.



"As the zigzags fade he has exalted sense of hearing; loud voices hurt him for a half hour, and this is the period of vertigo. At one time he had at this period of the attack tingling in the fingers of the side opposite to that of the pain. After a number of these headaches he is subject to the curious and exceptional illusions which have caused me to report his case. At times these replace the zigzag lines, but later in a series of headaches they come on independent of the hemicrania, and occur at night, while awake or in full daylight.

"1. A common delusion with him is to see about twenty feet distant a trellis of silver covered with vines and flowers of brilliant tints. This is seen best when the eyes are open, and comes and goes.

"2. He sees a series of complex geometrical figures at the centre of the field. These are brilliant pink or red.

"3. Quite commonly he sees multiple red circles intertwined and in rapid rotation, and once a red eye which seemed to approach him from a distance. Sometimes there is a milky cascade before both eyes.

"4. He saw once a crescent of silver on the wall, and suspended from it numerous heads in profile. Some were strange to him, and some were vivid revivals of faces which he had long forgotten.

"5. Six years ago he saw, during an attack, a huge red spider, which melted into a series of red rectangles revolving in swift motion.

"6. He has several times, and first on awakening, seen the door opened and a procession of white-robed veiled figures enter. They did not fade until he arose and lit the gas. These were seen with his eyes open or shut, and he could not double them by causing himself to squint by pressure on one eye."

It will have been seen that mescal supplied me with one-sided (left) frontal headache—later with occipital pain on both sides, with coloured zigzags or fortification lines—the rain of silver and disorder of the stomach. I ask myself now if the megrims with visions are apt to be found in association with occipital pain in the region of the convolutions, which we believe store up our ocularly acquired memories. It is worth an inquiry.

The mode of action of mescal is somewhat curious, and may vary with the dose and the man. At first, even at the height of drug action, the visions require one to wait with closed eyes for a minute or more. To open the eyes is to dismiss the vision, no matter how dark be the room. Suggestion availed me but little, and no act of will was competent to hold my dream unaltered.

I found in these seeming laws some resemblance to those which—in my case, at least—appear to govern a quite ordinary and normal phenomenon. From childhood I, like some others, can at night, before sleep arrives, summon visions. These are not always just what I desire. Once present I cannot alter them; they shift, change, and disappear under influences not within my capacity to control or to analyse. To open my eyes, even in the most intense darkness, dismisses these visions. Is it true of opium visions? The same law certainly applies to some hysterical phantasms; but the explanation does not as yet seem attainable. My normal power to summon visions was entirely lost under mescal action. I tried to see faces, gardens, etc., but none came at command so long as I was under the influence of the drug.

For the psychologist this agent should have value. To be able with a whole mind to experiment mentally upon such phenomena as I have described is an unusual privilege. Here is unlocked a storehouse of glorified memorial treasures of one kind. There may be a drug which shall so release a mob of verbal memories, or of musical records, or, in fact, of tastes and odours. I naturally speak of things seen under mescal influence as glorified memories—certainly nothing seen in these visions was altogether outside of my known experiences—but everything was excessive—forms were gigantic—colours marvellously intermingled. In fact, nothing was simply

the vision of a thing remembered and recognised except the familiar Newport Beach.

I see no obvious therapeutic uses for mescal in massive doses. It is yet to be tested by continuous employment in moderate amounts, and may be of value.

I sought so to limit the influence of mescal as to remain in full possession of all my faculties. The larger doses secure, as Dr. Prentiss has shown, more remarkable results, but may lessen the power to observe and to comment. I should dread a little less excessive amounts might leave too permanent effects. In fact, I constantly carried for days a quite vivid image of one of these jewel clusters, seeing it mentally whenever my mind was turned upon the subject of my visions.

I could match this also by a painful experience of some years ago, but I have said enough to show the great interest of this drug for physicians and psychologists. I predict a perilous reign of the mescal habit when this agent becomes attainable. The temptation to call again the enchanting magic of my experience will, I am sure, be too much for some men to resist after they have once set foot in this land of fairy colours, where there seems to be so much to charm and so little to excite horror or distrust.

Were I to take mescal again I should dictate to a stenographer all that I saw and in due order. No one can hope to remember for later record so wild a sequence of colour and of forms. But since to talk does not disturb these visions, a perfect account might easily be given. No one has told us what visions come to the Red man. I should like to know if those of the navy would be like those of the artist, and above all, what those born blind could relate; and, too, such as are born colour blind. In fact, a valuable range of experiment is here to be laid open.

I append to my own statement that of Dr. Eshner, one of the clinical staff of the Infirmary for Nervous Disease. It will be seen that, although the symptoms were not unlike my own, there were some interesting differences. There was nausea, whereas I had none; there was no distinct headache, whilst mine was notable. In general the experience was in Dr. Eshner's case more unpleasant than in mine or in those Dr. Prentiss has reported, neither were the visions so remarkable nor the colours as vivid as were those I saw. It is as well to add, as concerns my own statement, that when twice in my life, I have had to take hypodermic injections of morphine for several successive nights, the drug ceased to cause sleep after the third night. Later it gave rise to visions of very remarkable character, which I have elsewhere described. These were seen whether or not the eyes were closed, if only the room in which I lay was entirely dark.

Dr. Eshner writes me as follows: From doses varying from 10 to 50 drops I noticed no effect other, perhaps, than slightly diminished frequency of the pulse. Thus, an hour after taking 20 drops the pulse had fallen from 80 to 70. Fifteen minutes after a dose of 50 drops the pulse had fallen from 82 to 69, although in fifteen minutes more it was again 74. The same effect was noticed after large doses.

On May 30th, at 3.50 P.M., with a pulse of 78, I took a fluid drachm. At 4.25 P.M. my pulse was 73, and I took another fluid drachm. At 4.45 my pulse was 65, and I took a third fluid drachm. At 5 P.M., with a pulse of 61, I took 40 minims, all of the preparation I had left. At 5.15 my pulse was 59; at 5.30, 64; and at 6.30, 65.

As the constitutional facts appeared, I found I could not keep at serious work; I felt some distraction, and lacked my usual mental concentration. I soon began to feel badly, lapsing into a condition of general *malaise*, with not a little prostration, and had to give up any attempt at work, however small. I found some comfort in lying down, and when my eyes

closed I became conscious of a series of visual impressions, in most of which colour sensations were present. The pictures were characteristically kaleidoscopic, particularly as regards uniformity of arrangement. They changed frequently at times, like lantern pictures on a screen. The designs were various; some were Oriental, with stars and crescents, and points of light interspersed; others were mosaic in arrangement; some were screen-like; some fern-like; some showed chased figures. Neither the images nor the light were very vivid, although as a rule quite distinct. The intensity at times appeared related to the vigour with which the eyes were closed.

At about 6.30 P.M. I arose and attempted to eat a little, but failed. Nausea was quite pronounced, and there was total loss of appetite. At no time did vomiting occur.

I then lay down for half or three-quarters of an hour, and the visions were repeated. I had intended going out in the evening, and, in the hope of gaining relief, I equipped myself for a bicycle ride, and started off, despite my languor and general depression. I made my way to the Park without the slightest difficulty, and at Girard Bridge met and spoke to an acquaintance, stopped under the bridge to view the Memorial Day illumination, and went on. I rode in all about eight miles, going down a fairly steep declivity with ease, and descending a longer, and perhaps steeper declivity with almost equal ease. I perspired *en route*, not unduly, but perceptibly. I felt that my pupils must be dilated from the brilliancy of the light, with prismatic radiations and the large amount that entered my eyes. I think ocular accommodation may also have been affected, although the visual languor may have been only a part of the general languor. Vision seemed not alert. I was in a state of placid indifference, free from enthusiasm, free from aspiration, without spontaneity. I imagine there was a little dryness of the secretions of the mouth and throat, because my voice appeared a little deeper and fuller than usual. I was scarcely conscious of ordinary movement, and felt as though I could scarcely make any extraordinary movement, although I was conscious of the necessity of making the effort, and of the increased exertion necessary in mounting the hill of which I have spoken. In general, however, I seemed to go on by virtue of my own momentum. In a figurative way, I felt as if I were of the same density as the medium in which I floated, so that I would yield to slight external physical impulses. The feeling is one that I can best describe as muscular insensibility or motor anæsthesia. I was a little indifferent as to how I rode, yet not careless nor without a sense of responsibility, but I made little effort to avoid the rougher places, and appreciated very little jolting. I sustained my equilibrium perfectly, and was not compelled to dismount other than intentionally. I rode slowly down Broad Street by the side of a four-in-hand, and listened with enjoyment to the strains of the trumpeter. I met a little messenger boy on a bicycle who made a ludicrous impression on me, and whom at his request I helped to a match without dismounting.

I reached home about half-past nine, and called at the house of Dr. S. Weir Mitchell, and in his absence left a note for him. I was more fortunate in finding Dr. J. K. Mitchell at home, who noticed the deepening in my voice, dilatation of the pupils, some injection of the eyes, a little flushing of the face, increased knee-jerks and active muscle-jerks, a heart beat of 72, and, as he thought, some evident effort in speech. My own feeling was one of partial release of inhibition, of relaxation of restraint and of repression. The state was not a pleasurable, but rather a helpless one. I could write freely and with ease about what I had passed through and was passing through, and experienced a certain freedom and fluency of expression.

I sat up and read from about ten until half-past twelve, the visions returning whenever I closed my eyes. Now I was again able to see all sorts of new designs, fresco work, porcelain decorations, tapestry figures, intricate laces, parquetry, diagrams, various kinds of scroll work, etc. I endeavoured to picture an American flag, but only partially succeeded after I had retired, and then my flag was furled. I saw coats of arms and shields and the like. All colours were represented. I looked especially for blue, as Dr. Mitchell had told me that he had seen all colours but blue, and I was successful. At one time I saw various shadows of green, and at another especially purples, violets, lilacs, etc. In none of the images were people or animals or other objects than designs represented.

As I read I was easily pleased. At this time I experienced a sense of nausea, with a suggestion of burning and weight in the umbilical region; but this was gone by the following morning.

Before going to bed I partook of a sandwich and some milk. I found the sense of taste benumbed. I was not able to fall asleep for some time. My sense of hearing seemed to be more receptive, but less acute. The condition might be described as an impairment of the auditory accommodation comparable to the corresponding ocular state. My breathing failed specially to attract my attention, but seemed shallow. I was conscious of pain on being pinched.

The night was a restless one, with some snatches of sleep of varying length, but I arose with ease at the usual hour, feeling not much the worse for my late experience, and not at all sleepy. There remained a sense of fullness in the head, but no other reminder. I partook of my usual breakfast with ordinary relish. The preparation had a disagreeable nauseous taste, with suggestion of pungency. - *Brit. Med. Jour.*, Dec. 5, 1896.

## A NOTE ON THE PHENOMENA OF MESCAL INTOXICATION.

By HAVELOCK ELLIS.

Editor of the "Contemporary Science Series."

Mescal buttons (the fruit of *Anhalonium Lewinii*) are eaten by the Kiowa and other Indians of New Mexico, and their use is connected with religious ceremonial. Recently the extraordinary vision-producing properties of this substance have been investigated in America by Prentiss and Morgan, and more especially by Weir Mitchell, who has published a very interesting record of the marvellous colour visions by which he was visited when under the influence of mescal. There seems, however, to be at present no record of any experiment in the use of mescal in the production of visual phenomena carried out on this side of the Atlantic. The phenomena are certainly of much interest—perhaps even more so to the psychologist than to the physician, notwithstanding remarkable results recorded in the treatment of neurasthenia, &c.—and it may therefore be worth while to record briefly my personal experience with mescal. I will refrain here from describing the visions themselves, which were, perhaps, less wonderful in my case than in that of Dr. Weir Mitchell (who, as he admits, is a favourable subject for visions, while I am not), and speak chiefly of other phenomena which were either unnoticed or unexperienced by the American observers.

On good Friday, being entirely alone in quiet London rooms, I made an infusion of three buttons (a full dose) and took it in three portions at intervals of an hour between 2-30 and 4-30 p.m. The first noteworthy result (and the only one of therapeutic interest which I have to record) was that a headache which had been present for some hours and showed a tendency to aggravation was immediately relieved and speedily dissipated. There was slight drowsiness before the third dose was taken, but this speedily passed off and gave place to a certain consciousness of unusual energy and intellec-

tual power, which also quickly passed off, and was not marked and prolonged, as with Dr. Weir Mitchell. So far no visual phenomena had appeared even when the eyes were closed for several minutes, and there was yet no marked increase of knee-jerk; there was, however, a certain heightening of muscular irritability, such as may be noted when one has been without sleep for an unusual period. The pulse also began to fall. After the third dose I was still feeling on the whole better than before I began the experiment. But at 5 P.M. I felt slightly faint, and it became difficult to concentrate my attention in reading; I lay down and found that the pulse had now fallen to 48, but no visual phenomena had yet appeared. At 6 P.M. I noticed while lying down (in which position I was able to read) that a pale violet shadow floated over the page. I had already noted that objects which were not in the direct line of vision showed a tendency to be heightened in colour and to appear enlarged and obtrusive, while after-images began to be marked and persistent. At 6 P.M. there was a slight feeling of faintness as well as of nausea, and the first symptoms of muscular incoördination began to appear, but there was no marked discomfort. By 7 P.M. visions had begun to appear with closed eyelids, a vague confused mass of kaleidoscopic character. The visual phenomena seen with open eyes now also became more marked, and in addition to the very distinct violet shadows there were faint green shadows. Perhaps the most pleasant moment in the experience occurred at 7-30 P.M., when for the first time the colour visions with closed eyes became vivid and distinct, while at the same time I had an olfactory hallucination, the air seeming filled with vague perfume. Meanwhile the pulse had been rising, and by 8-30 P.M. had reached its normal level (72 in the sitting posture). At the same time muscular incoördination had so far advanced that it was almost impossible to manipulate a pen, and I had to write with a pencil; this also I could soon only use for a few minutes at a time, and as I wrote a golden tone now lay over the paper, and the pencil seemed to write in gold, while my hand, seen in indirect vision as I wrote, looked bronzed, scaled, and flushed with red. Except for slight nausea I continued to feel well, and there was no loss of mental coolness or alertness. When gazing at the visions with closed eyes I occasionally experienced slight right frontal headache, but as I only noticed it at these times I attribute this mainly to the concentration of visual attention. In one very important particular my experience differs from Dr. Weir Mitchell's. He was unable to see the visions with open eyes even in the darkest room. I found it perfectly easy to see them with open eyes in a dark room, though they were less brilliant than when the eyes were closed. At 10 P.M., finding that movement distinctly aggravated the nausea and faintness, I went to bed, and as I undressed was impressed by the bronzed and pigmented appearance of my limbs. In bed the nausea entirely disappeared, not to reappear, the only discomfort that remained being the sensation of thoracic oppression, and the occasional involuntary sighing, evidently due to shallow respiration, which had appeared about the same time as the vision began. But there was not the slightest drowsiness. This insomnia seemed to be connected less with the constantly shifting visions, which were always beautiful and agreeable, than with the vague alarm caused by thoracic oppression, and more especially with the auditory hyperæsthesia. I was uncomfortably receptive to sounds of every kind, and whenever I seemed to be nearly falling asleep I was invariably startled either by the exaggerated reverberation of some distant street noise (though the neighbourhood was even quieter than usual), or, again, by the mental image (not hallucination) of a loud sound, or, again, as I was sometimes inclined to think, by actual faint hallucinatory sounds; this, however, was difficult to verify. At a later stage there was some ringing in the ear. There was slight twitching of the larger muscles of the legs, &c., and before going to bed I had ascertained that the knee-jerk was much exaggerated.

The skin was hot and dry. The visions continued. After some hours, tired of watching them, I lighted the gas. Then I found myself in a position to watch a new series of vivid phenomena to which the previous investigators had not alluded. The gas—i.e., an ordinary flickering burner—seemed to burn with great brilliance, sending out waves of light which extended and contracted rhythmically in an enormously exaggerated manner. What chiefly impressed me, however, were the shadows which came in all directions, heightened by flushes of red, green, and especially violet. The whole room then became vivid and beautiful, and the tone and texture of the whitewashed but not remarkably white ceiling was immensely improved. The difference between the room as I then saw it and its usual appearance was precisely the difference one may often observe between the picture of a room and the actual room. The shadows I saw were the shadows which the artist puts in, but which are not visible under normal conditions of casual inspection. The violet shadows especially reminded me of Monet's paintings, and as I gazed at them it occurred to me that mescal doubtless reproduces the same conditions of visual hyperesthesia, or rather exhaustion, which is certainly produced in the artist by prolonged visual attention (although this point has yet received no attention from psychologists). It seems probable that these predominantly violet shadows are to some extent conditioned by the dilatation of the pupils, which, as the American observers had already noted, always occurs in mescal intoxication. I may remark in this connexion that violet vision has been noted after eye-operations; and Dobrowsky has argued that a necessary condition for such vision is the dilatation of the pupils produced by atropine, so that the colour vision (chiefly violet, though to some extent of other colours) is really of the nature of an after-image due to bright light. Dobrowsky's explanation seems to fit in accurately with my experiences under mescal.

I wished to ascertain how the subdued and steady electric light would influence vision and passed into the next room. Here the richly coloured shadows, evidently due to the stimulus of the flickering light, were not obtrusive; but I was able to observe that whatever I gazed at showed a tendency to wave or pulsate. The curtains waved to a marked extent. On close inspection I detected a slight amount of real movement, which doubtless increased the coarser imaginary movement; this latter showed a tendency to spread to the walls. At the same time the matting on the floor showed a very rich texture, thick and felted, and seemed to rise in little waves. These effects were clearly produced by the play of heightened shadows on the outskirts of the visual field. At 3-30 A.M. I found that the phenomena were distinctly decreasing, and soon fell asleep. Sleep was apparently peaceful and dreamless, and I rose at the usual hour without any sense of fatigue, although there was a slight headache. A few of the faint visual phenomena with which the experience had commenced still persisted for a few hours.

Motor incoördination and the thoracic symptoms of cardiac and respiratory depression were in my case the only really unpleasant symptoms of the experiment. They are barely noticed by the American observers, who emphasise the gastric symptoms and headache, in Dr. Weir Mitchell's case persisting for several days. In my case there were practically no unpleasant after results. I cannot say how far the method of administration affected this result. I took the drug in infusion; previous experiments used an extract or a tincture, or else ate the buttons.

It cannot be said (from my experience) that the pleasure of mescal intoxication lies in any resultant passive emotional state such as is produced by tea or alcohol, but strictly in the enjoyment of the colour visions produced. Attention is impaired (and one realises under the influence of mescal how largely attention is a matter of coördination), but intellectual judgment remains unimpaired. The visions, as I recall them, seem to me

(unlike most dream visions) as beautiful in memory as when I experienced them. The sensory phenomena seem to be due to great and general disintegration and exhaustion of the sensory apparatus; in a slighter degree the same phenomena are found in neurasthenia, even the colour vision. I am convinced that all the senses were more or less affected. There were vague dermal sensations, and the body felt unfamiliar to touch, just as everything seemed delightfully unfamiliar to the sense of vision. I noticed also, that any marked casual stimulation of the skin produced other sensory phenomena—a heightening of the visions or an impression of sound. This is a phenomenon which may throw an interesting light on the synæsthesie or “secondary sensations.”

The phenomena of mescal intoxication are thus mainly a saturnalia of the specific senses, and chiefly an orgy of vision. Personally, I have found the penalty of a single dose surprisingly light, though, having learned what the experience has to teach, I have no special inclination to renew it. But I fully agree with Dr. Weir Mitchell, that there is every likelihood that mescal will become popular. It certainly has a great future before it with those who cultivate the vision-breeding drugs. At the same time it is of no little interest to the physiologist and psychologist.—*Lancet*, June 5, 1897.

## REMARKS ON THE PLAGUE PROPHYLACTIC FLUID.

By W. M. HAFKINE, D.Sc.,  
of the Pasteur Institute.

Dr. Haffkine, who, as is well known, is now employed on a special bacteriological mission under the auspices of the Government of India, for the investigation of the prophylactic and therapeutic treatment of plague, writes to us from Bombay as follows :

The first condition to be fulfilled for carrying out laboratory work on a microbe is to become able to recognise it with certainty, and to distinguish it from amongst all others which in the course of the work may become associated with it, or substitute for it.

The following are the features by which the plague bacillus may be recognised :

### 1. STALACTITE GROWTH IN BROTH.

Broth richly inoculated with the plague bacillus is to be placed in a perfectly quiet position on an absolutely solid table or shelf, and observed undisturbed. The least oscillation will destroy the reaction. Twenty-four to forty-eight hours after inoculation, the liquid remaining limpid, flakes appear underneath the surface, forming little islands of growth. In the next twenty-four to forty-eight hours the flakes grow down in a long stalactite-like jungle, the liquid always remaining clear.

In four to six days the islands of growth get more compact and solidified. If the flask is slightly disturbed then, the islands fall down to the bottom in a sort of snowfall, bringing down the stalactites, the whole growth getting deposited at the bottom. The islands, when solidified, are not disintegrated even by violent shaking, whereas the stalactites are very fragile. The appearance of the islands of growth underneath the surface is accompanied or preceded by the deposition of a residue on the sloped walls of the flask and at the bottom, as well as by the appearance of a ring round the surface of the liquid.

### 2. INVOLUTION FORMS ON AGAR-AGAR.

The medium is not to contain glycerine, and is not to be freshly prepared but must be partly desiccated, and have the surface perfectly dry, showing a good alkaline reaction. The germs are to be inoculated abundantly, and preferably spread over the whole surface of the agar in a continuous layer.

Rarely in twenty-four hours, as a rule in three to four days, the indivi-

dual microbes begin to swell up, and form large round, oval, pear, or spindle-shaped or biscuit-like bodies, staining in the beginning well, afterwards showing colourless central regions, which extend gradually to the peripheral parts. The bacilli become unrecognisable, lose the appearance of schizomycetic microbes, and acquire that of a yeast cell or alga. The swelling continues often to the extent of forming a body about twenty times larger in surface than the original bacillus. The power of staining is afterwards lost completely, and the remains of the microbe appear in the shape of an unrecognisable dusty spot.

These forms are not to be seen in liquid cultures, but I have discovered them in the tissues of inoculated rabbits, and demonstrated them to the officer in charge of the *post mortem* examination, Surgeon-Captain Childe, who was afterwards able to trace their presence in human tissues in a perfectly certain manner. Their appearance in the tissues suggests at first the idea of modified blood corpuscles, or disintegrated tissue cells, or stained drops of albumen.

#### THE PROPHYLACTIC FLUID.

The theoretical conjectures which led to the plan of preparation of the plague prophylactic were the following:—The inoculation against cholera, which is made with the bodies of Koch's bacilli, cultivated on solid media, results in a reduction of the susceptibility and of the absolute mortality from the disease, but does not affect the case mortality. In the light of the present knowledge this is to be put in relation with the production in the inoculated individual of bactericidal powers and not of antitoxic, as has been actually demonstrated by Pfeiffer and Kolle. There is the possibility of the bactericidal powers being created by the injection of bodies of microbes, or substances enclosed in them, while antitoxic properties may be communicated by injection of the metabolic substances secreted or produced in the surrounding media, as is the case in the diphtheria treatment of horses.

In the present instance I decided to make an attempt to effect both a reduction of the susceptibility and of the case mortality, by combining in the prophylactic substance large quantities of bodies of microbes together with intensified extracellular toxins.

I cultivate luxurious crops of plague microbes by adding to the nutritive media abundant quantities of fat exposed to free aëration. For the preparation of the prophylactic fluid I utilise the fat of milk in the shape of what is called in this country "ghee," which is clarified butter, used not pure, but suspended in large flasks on the surface of nutritious fluids employed for cultivation of microbes generally. The growth begins first of all underneath the drops of butter, in the shape of flakes and stalactites, described above, leaving the liquid limpid.

When the fluid is filled with a rich jungle the growth is shaken off the drops of butter, and brought down to the bottom of the liquid, leaving the butter on the surface free to produce a second crop of growth. In the course of a month half a dozen successive crops are thus obtained, which fill the liquid, when shaken, with an opaque milky emulsion. The microbes in this fluid are killed by the temperature of 70° C., maintained for one hour. In a quiet position in test tubes two different substances are then obtained: a thick white sediment and a perfectly limpid fluid. Injected subcutaneously into animals they produce (1) the sediment, a local inflammation and a nodule at the seat of inoculation accompanied with little fever or general effect: and (2) the fluid, a considerable rise of temperature and a general affection, with no noticeable local effects.

On January 23rd, 1897, the plague broke out in Her Majesty's House of Correction, Byculla, Bombay, while the number of inmates was 345. Between January 23rd and 29th 9 cases with 5 deaths occurred. On the morning of January 30th 6 more cases took place, of which 3 proved fatal. In the afternoon 154 prisoners belonging to the same batches as the rest,



and living with them in perfectly identical conditions, volunteered to undergo the preventive inoculation, and received 3 c.cm. of the mixture of sediment and fluid described above. One of these men had a swollen gland at the time of inoculation, and two others developed glands on the same evening, within a few hours after inoculation. These three cases proved also fatal.

From the next morning a difference showed itself in the susceptibility and mortality of the inoculated when compared with the non-inoculated, as is to be seen from the subjoined table :

| Date of Attack.                               |  |   |                  | Amongst the<br>Non-<br>Inoculated. | Amongst the<br>Inoculated. |
|---|--|---|------------------|------------------------------------|----------------------------|
| 1897  |  |   |                  |                                    |                            |
| Between January 23rd and 29th ... ..          |  |   |                  | 9 cases, 5 fatal                   | — —                        |
| 1897  |  | } Forenoon before inoculation<br>Afternoon, after inoculation | 6 cases, 3 fatal |                                    | — —                        |
| January 30th, day<br>of inoculation           |  |   | — —              |                                    | 3 cases, fatal             |
| 1897  |  |   |                  |                                    |                            |
| January 31st, first day after inoculation ... |  |   |                  | 2 cases, 1 fatal                   | 1 case, recovered.         |
| February 1st, second " " "                    |  |   |                  | 1 case, fatal                      | — —                        |
| " 2nd, third " " "                            |  |   |                  | 1 case, fatal                      | — —                        |
| " 4th, fifth " " "                            |  |   |                  | 1 case, fatal                      | — —                        |
| " 5th, sixth " " "                            |  |   |                  | 2 cases, 1 fatal                   | — —                        |
| " 6th, seventh " " "                          |  |   |                  | 5 cases, 1 fatal                   | 1 case, recovered.         |

Total occurrences from the first day after inoculation till the end of epidemic : 12 cases, 6 fatal, in an average daily strength of 173 non-inoculated ; 2 cases, none fatal, in an average daily strength of 148 inoculated.

If repeated observations in similarly precise conditions confirm the results in the Byculla Gaol, the plague prophylactic will appear to influence the disease in men in a very advanced stage of incubation, the period of the latter being in plague apparently between two and seven days, whereas the prophylactic will appear to act in some twelve to fourteen hours, arresting or mitigating the disease in individuals infected several days before. The rapidity of its effect would recall the immunity produced in a few hours in animals by injection of non-fatal doses of comma bacilli into the peritoneal cavity.

Between January 10th and May 6th, 1897, 11, 362 individuals from the infected areas have been inoculated by the above process with the following occurrences, which do not include those in the Byculla House of Correction detailed above.

The fatal occurrences were 12, namely : 3 patients who were already unwell at the time of inoculation ; 3 patients who contracted the disease within twelve hours after inoculation : 2 patients who fell ill within three days after inoculation ; 4 patients attacked fifteen to twenty-five days after inoculation. The attacks with recoveries numbered 33.

Figures relating to the general population are not available for an exact comparison with the death-rate from plague in the corresponding classes of non-inoculated persons. A rough estimate, however, would seem to show that the inoculated have suffered to an extent about twenty times smaller than the non-inoculated living under the same conditions and exposed to the same chances of infection.—*Brit. Med. Journal*, June 12, 1897.

## PROF. CALMETTE'S FURTHER STUDIES ON SNAKE POISON AND IMMUNITY.

PROF. CALMETTE, whose name is so indissolubly associated with the study of snake bites and their treatment by antivenomous serum, has lately published in the *Pasteur Annales*, in conjunction with his assistant M. Delardé a most interesting and highly important series of experiments helping to elucidate the mechanism of immunity. Endeavouring to throw light upon some of the problems surrounding this highly complex question, Calmette has selected two different kinds of toxin, the one vegetable and the other animal.

The vegetable toxin was furnished by the substance known as abrine, which is the active principle of the seeds or beans of *abrus precatorius*, a leguminosa common in India and South America. It is a highly toxic material, and one milligramme suffices to kill a rabbit in forty-eight hours. Very few animals apparently can resist its action, and so far as Calmette's observations go, this immunity is restricted to hedgehogs, fowls, tortoises, snakes (*conoleures*) and frogs. It requires as much as ten milligrammes of abrine to destroy either a hedgehog or a fowl in forty-eight hours, whilst a tortoise only succumbs after a dose of thirty milligrammes.

The animal toxin selected for these experiments was, as might be expected, serpent venom, consisting of a mixture of venoms derived from various kinds of poisonous snakes.

In the course of his previous researches, Dr. Calmette was led to believe that snakes had a charmed life against all injections of serpent venom; but he now tells us that his earlier conclusion requires correction. He has succeeded in killing Egyptian asps and a serpent native to Indo-China by injecting doses of venom three times as great as that normally present in their respective poison glands, and he is, therefore, of opinion that although reptiles do possess great powers of resisting the toxic effect of serpent venoms, yet, contrary to what he at first supposed, their immunity to this poison is not absolute.

Various hypotheses have been suggested to account for this comparative immunity exhibited by reptiles to the effect of venom, and Prof. Fraser, of Edinburgh, has attributed this phenomenon to the presence in the blood of reptiles of some anti-toxic substance. Calmette, however, has shown that far from protecting animals from the toxicity of venom, reptile blood causes their death. Experiments in this direction were not only made with the blood derived from the liver and other organs of a *naja tripudians*, but also with injections of a filtered aqueous emulsion of these organs, but in no case was any protective action recorded.

Again, the serum of pigs, which animals in some countries are specially trained for the purpose of hunting serpents, which they devour greedily without suffering the least inconvenience from their bites, the serum of these animals has no modifying action whatever outside the body, *in vitro*, on serpent venom, and has no protective action.

Similar experiments were also made with animals exhibiting a relative immunity to the toxic action of the vegetable poison, *i.e.* abrine. It was found that whereas the normal serum of hedgehogs, which animals possess a natural immunity to abrine poisoning, can protect other animals susceptible to this toxin from its lethal effects, yet to do so effectually large quantities of the serum in question must be employed. On the other hand, fowls and tortoises, although also naturally immune to the abrine toxin, can confer, by means of their serum, no protective power whatever upon other animals against this poison.

The next question approached by Calmette was whether these so-called

refractory animals can elaborate anti-toxins, and in the course of his experiments on this subject he obtained some very curious results.

For these investigations abrine only was employed, and profiting by the fact that fowls and tortoises had proved very refractory to this toxin, these animals were chosen as subjects for the inquiry.

Two fowls were given in the course of twelve days, about eight milligrammes of abrine. Whilst, as we have seen, ordinary fowl-serum can confer no immunity from the effects of abrine poison, the serum derived from the abrine-treated fowl was possessed of immunising properties. In this case, therefore, a refractory animal, normally incapable of yielding an anti-toxic serum, had been trained by artificial means to do so. Similar experiments made with another refractory animal gave, however, quite different results, for when tortoises were treated with abrine poison, instead of their serum, acquiring any protective property, it killed those animals into which it was injected, and by no amount of artificial training could their serum become endowed with any immunising effect. Exactly similar results were obtained with frogs, and whilst the normal blood of these animals was repeatedly proved to be quite devoid of all toxic action on mice, yet after the frogs had been inoculated with abrine, and trained to acquire an immunity beyond their brother frogs towards this substance, their blood invariably killed the mice into which it was injected. Dr. Calmette concludes from these observations that natural immunity to a particular toxin does not imply the existence of a specific anti-toxic substance in the blood of such refractory animals, and that whilst apparently warm-blooded abrine-refractory animals can be trained to elaborate anti-toxins, cold-blooded abrine-refractory animals cannot produce such anti-toxins in the normal conditions of their existence. The latter portion of this generalisation receives some support from Metchnikoff's observations of the same phenomenon in the case of tortoises and tetanic-toxin.

Prof. Calmette next proceeds to discuss the properties of serum, derived from those animals in which the immunity to a particular toxin is not natural, but has been artificially induced. We are again for this purpose taken back to anti-venomous serum, and some additional information is given incidentally of the wonderful efficacy which characterises this remarkable remedy for snake bites. Perhaps one of the most astonishing properties of this serum is the rapidity with which it operates. Thus if two cubic centimetres of anti-venomous serum be inoculated into the marginal vein of a rabbit's ear, it at once confers upon the latter immunity towards snake poison. Immediately after the injection of the serum, venom sufficient to destroy an ordinary rabbit in a quarter of an hour may be injected with impunity into the vein of the other ear. Its degree of therapeutic efficiency is also extraordinarily intense, as is well illustrated by the following experiment: four rabbits are inoculated, with a quantity of venom sufficient to destroy them in two hours; one of these is left, whilst the other three receive, one hour and three-quarters later, an intravenous injection of serum equal in quantity to one four-hundredth part of their weight. Whilst the unprotected rabbit dies in two hours, the other three remain in perfect health. "*Voilà donc un sérum qui,*" writes Calmette, "*d'emblée, sans réaction préalable de l'organisme, produit l'insensibilisation absolue des cellules à l'égard du venin.*"

Of great importance in their practical bearing are the experiments which are recorded on the *local* action of anti-abrine and anti-venomous serum respectively. As is well known, abrine was at one time used for the treatment of trachoma, but unfortunately the subsequent suppuration which attended its use was in many cases so intense and so dangerous that it had to be abandoned for therapeutic purposes.

Now Calmette has found that by applying anti-abrine serum to the local

parts affected, the inflammatory action of abrine is modified in a very remarkable manner, and the hope is held out that by using this serum, and so controlling the inflammation induced by application of abrine, this valuable substance may once more be reinstated in the therapeutics of ophthalmology. Anti-venomous serum has apparently the same local immunising action as the anti-abrine serum.

Another practical point of great importance concerning these serums is also dealt with in detail; this is the diagnostic value attaching to their use. Already Pfeiffer and other investigators have shown how, by means of serum, it is possible to differentiate between cholera and other non-pathogenic vibrios, and to distinguish the typhoid from the closely-allied *B. coli communis*. A most interesting opportunity occurred for testing the diagnostic power of anti-venomous and anti-abrine serums respectively. In India the natives frequently wreak their vengeance on their enemies by poisoning their domestic animals, and the substances selected for this purpose are those which they know will be with difficulty detected by expert analysis. Two materials are specially favoured by them for this purpose, i.e. abrine and serpent venom. One method of administering the poison consists in taking short pieces of wood shaped in the form of a club, in the thick end of which small-pointed rods are carefully fitted. These rods are composed of a hard greyish-looking substance. Armed with these tiny clubs, which they can easily conceal in their hands, they inflict small scratches, scarcely visible, upon the cattle, but in the production of which the pointed end of the little rod is broken off, and in this manner the cattle become inoculated with the poison. Some of these small broken-off points were sent by Mr. Hankin, of Agra, to Dr. Calmette for examination. On dissolving these fragments in water and inoculating the liquid into rabbits, the latter died, exhibiting the symptoms typical of abrine poisoning. The same quantity of this liquid mixed with some anti-abrine serum produced no toxic result whatever. Thus Dr. Calmette considers his diagnosis of the poison employed as being abrine fully justified. In a somewhat similar manner the use of serpent venom was also detected.

These results open up a new avenue to the physiological detection of toxins, whether of animal, vegetable, or bacterial origin by means of serums.

Some extremely interesting experiments were also made to ascertain whether toxins and antitoxins were capable of modifying one another outside the body *in vitro*. The following examples give some idea of the results obtained. 5 cubic centimetres of anti-venomous serum were mixed *in vitro* with 4 milligrammes of cobra venom, and this mixture was injected intravenously into a rabbit. The animal remained unaffected; at the end of an hour, this same rabbit was again intravenously inoculated with 1 milligramme of venom. It died thirty-five minutes afterwards. Thus although its death was slightly deferred beyond that which was noted for the control animal, yet it succumbed almost as readily as if it had received no protective serum whatever. Again, 5 cubic centimetres of anti-venomous serum were mixed with 4 milligrammes of venom and 1 cubic centimetre of a 10 per cent. solution of hypochlorite of lime, and the whole was inoculated into a rabbit. This same animal, on subsequently receiving a dose of venom usually fatal, suffered no ill-effects at all. In this case, Dr. Calmette points out, that whilst the serum had remained unaffected by the addition of a chemical substance, the toxic nature of the venom had, on the contrary, been entirely destroyed. Hence it is claimed that when toxins and their anti-toxins are mixed *in vitro*, the former do not appear to undergo any change or modification through the presence of the latter. Therefore, either these substances can remain side by side outside the body intact, or, if any combination between them does occur under these

circumstances, it is a combination which is so unstable that the application of heat or various chemical substances is able to easily bring about their disunion, restoring to either the properties they possessed before being brought into contact. Dr. Calmette, in concluding his most valuable memoir, records a large number of experiments made to ascertain what is the degree of protective power exercised by anti-toxic serums of different origin and certain liquids on animals inoculated with abrine. It has been found that broth freshly prepared, normal ox-serum, anti-tetanic serum, anti-diphtheritic serum, anti-anthrax serum, and, above all, anti-cholera serum, exert individually a decided immunising action with regard to abrine. Although the protective action of these so-called foreign serums is not so pronounced as in the case with anti-abrine serum, yet they do undoubtedly confer a certain degree of protection. Dr. Calmette considers that this artificially induced immunity must be regarded as a condition in which the cells of the body are specially stimulated, and are thus enabled to either temporarily or permanently resist the action of particular poisons.

The mechanism of immunity will not permit itself to be lightly mastered, and it is only by the conduct of painstaking and patient inquiries, of which those just described are such a splendid example, that a comprehension of this most important as well as fascinating phenomenon can ever be hoped for.—*Nature*, May 13, 1897.

## Acknowledgments.

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तदेव युक्तं भणञ्चं यदारोग्याय कल्पते ।

सचैव भिषजः श्रेष्ठो रोगेभ्यः सः प्रबोद्धेत् ॥

चक्रेर्षहिता ।

That alone is the right medicine which can remove disease :

He alone is the true physician who can restore health.

*Charaka Samhitā.*

EDITED BY

MAHENDRA LAL SIRCAR, M.D., D.L., C.I.E.

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THE  
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HAHNEMANN'S MODE OF ADMINISTERING  
MEDICINE.

II.

It is not conceivable that the processes of trituration and succussion can do anything more than divide and subdivide a substance into finer and still finer particles. Now the question is, how far can this subdivision be carried on? If the atomic theory is true, if a material body is composed of groups of atoms, in the case of simple substances, and of groups of molecules in the case of compound substances, each molecule being a combination of groups of atoms of two or more simple substances as the case may be, is it possible by trituration or succussion to reduce a simple substance into its ultimate atoms and a compound substance into its ultimate molecules? And as the atoms and the molecules have definite sizes, can the subdivision be carried further? The molecule may be decomposed into ultimate atoms of its constituent simple substances, but can the atoms themselves be broken up?

It is true that Sir William Crookes has found reasons to believe that there is evolution even in the genesis of atoms, and that in consequence the atoms of our chemistry are not absolutely simple substances, but that they may be compound after all.

Admitting this to be the case, is it possible by means of trituration and succussion to break up atoms? Will a substance remain the same identical substance when, if it is an ordinary compound, its molecules are broken up into their constituent atoms, and when, if it is a simple substance, its atoms are disintegrated? In the former case it is a demonstrated fact that the identity of the substance is lost, and by analogy we can predicate the same thing in the latter case.

These questions are not idle questions fit to be speculated upon only by the theorist. They are of deep interest to the physicist and the chemist, and of practical interest to the homœopathic physician and pharmacist. Upon the proper solution of these questions will depend the solution of the question—how far can the processes of trituration and succussion be carried on consistent with the maintenance of the identity of the medicinal substances which are subjected to them. For if in reality there is a limit beyond which any substance cannot be further subdivided by these processes it would be idle and illusory to continue them beyond that limit. And again, if in reality they can disintegrate the molecules of compound substances, and the atoms of simple substances, it would be unprofitable for therapeutic purposes to carry them to that extent.

Are there tests by which the limit of division by trituration and succussion may be ascertained? The only conceivable tests we can think of come under the head of 1. Physical, 2. Chemical, and 3. Physiological.

Under Physical we have, in the chronological order in which they have been applied, the microscope, the spectrum analysis, the electric, and the crystallization tests.

The microscope was made use of for the detection of the metals in the triturations by Segin, Mayerhofer, Koch, and Rummel. Dr. Mayerhofer's observations were the least open to fallacy and objection. "In order to avoid all deception," says Dr. Dudgeon, in his *Lectures on Homœopathy*, "he first carefully noticed the appearance under the microscope of the non-medicated milk-sugar, alcohol, distilled water, and the empty object-glass, and after becoming familiar with their appearance he then subjected to inspection the preparations, which he made himself in the proportion of the medicine to ninety-eight of the

vehicle." The metallic triturations he dissolved in distilled water, in order to separate the metallic particles from the milk-sugar. The triturations were examined with a magnifying power of one hundred and twenty diameters, the dilutions with a power of two hundred to three hundred diameters."

The metals, of which the triturations and dilutions Dr. Mayer has thus subjected to microscopic examination, were platinum, gold, silver, mercury, iron, lead, copper, tin, zinc, and arsenic. As regards platinum and gold, he says: "By a power magnifying 90,000 times and a good light, I could follow the grains of platina to the tenth trituration, I think I have even seen them at the 12th and 13th." "I could follow the metallic gold with certainty to the tenth or eleventh trituration." He has drawn the following conclusions from his experiments which were very careful, and complete so far as they went:

1. The precious metals, even when triturated to the finest powder, retain all the properties of the metals unchanged, and after this subdivision of their particles are just as insoluble in alcohol and water as when in larger
2. The metallic lustre is exhibited by the precious metals even when reduced to the smallest visible parts, but disappears from the baser metals, owing to their oxydation. The specific gravity is only seen in the larger particles, for the smaller ones float on the surface or are suspended in the liquid.
3. In the process of trituration there is a progressive division and diminution of the substance, and this, by making it capable of assimilation by the organism, may be called a rousing or awakening of its medicinal powers. It is doubtful if succussion has any effect in dividing the particles still more; there is no question of a solution, in the proper sense of the word, the particles are only suspended; there is, however, a disengagement of electricity and magnetism by the friction of the metallic particles against one another. Whilst the old school called such a minute subdivision of the metals "killing them," the new school called it "vivifying them," with more justice as regards the living organism.
4. Though the actual divisibility of matter by mechanical processes borders on the marvellous, still it is limited, and is far below the mathematical idea of infinity. The visible particles of the substances become gradually smaller and fewer as the triturations advance, and at length cease altogether; the atoms becoming always smaller and more mobile, at length come to be so much so that they elude the triturating force. We ought, however, to be quite content with the actual divisibility, for examination shows the diameter of the smallest metallic particles to be one twelve-hundredth to one two-thousandth part of a line, while the diameter of the blood-globule is one three-hundredth of a line, so that the cubic contents of the metallic particles are sixty-four times less than those of the blood-globule. A patient, who takes a grain of the third trituration of tin or arsenic, swallows the amazing number of 115,200,000 particles of the medicine, and if he take it made according to the decimal scale, no less than 876,000,000 particles, each of which possesses all the properties of the metal, and from their minute size can freely penetrate to all parts of the organism and develop their peculiar effects on every part.

5. It is of great importance what preparation is used for the trituration. Metallic oxides, precipitated metals, and fluid mercury are the best; iron and lead filings less good; still worse are zinc and copper powder obtained by rubbing on a stone under water; and worst of all are silver and gold leaf.

6. It is only the precious metals that afford real reguline preparations, the base metals seem all to become oxydized during trituration, owing to their affinity to oxygen. It would therefore be preferable to select the oxyd of all these base metals at once for trituration.

Dr. Segin and Rummel pretended to have detected particles of the triturated metals even in the 200th dilution by the aid of the solar microscope, an instrument which, as Dr. Dudgeon has truly remarked, is absolutely unfit and untrustworthy for such investigations.

The experiments of Mayerhofer do unquestionably establish the fact that there is progressive division and diminution of the substance by the triturating process, but we do not think they justify him in believing that "there is no question of solution in the proper sense of the word, that particles are only suspended" in the liquid in which after trituration to a certain degree they are subjected to the process of succussion, and that "it is doubtful if succussion has any effect in dividing the particles still more." For as Dr. Dudgeon has very shrewdly observed, "it is evident his investigations could only detect particles of the metals that were undissolved; had any particles been dissolved, the mere fact of their solution would have removed them beyond the sphere of microscopical investigation."

The highest trituration in which solid particles of the metal were observed by Dr. Mayerhofer was the 13th of Platinum. This was in 1844, that is, more than half a century ago. We are not aware if any further microscopic observations with the homœopathic triturations have been made since. Further observations are worth being made to see if the recent improvements in the microscope will enable us to find particles more attenuated than what could be done by trituration up to the thirteenth. A limit would certainly be arrived at beyond which there would be no further division by this process. The only other test by which the division can be further pursued is spectrum analysis. This test was applied by Dr. Ozann at Paris so far back as 1862, that is, immediately after the discovery of this mode of analysis by Bunsen and Kirchhoff. Dr. Ozann could detect the substance triturated or succussed as far as the

the centesimal or the 100th decimal. No further application has been made of this test since, but it is worth making a careful application of this test again and again, especially beyond the point where the microscope has failed. For if substances can actually be demonstrated beyond this, then the solubility of the so-called "insoluble" will be established. In order to determine where the solubility commences we should suggest that each trituration from the very first one be dissolved in distilled water and filtered, and the filtrate examined both microscopically and by spectrum analysis. This will tell us if the attenuated particles do pass through the filter, and if so at what attenuation. If the attenuated particles do not pass through the filter up to an certain stage of attenuation, and if the spectrum analysis detects the presence of the substance in the filtrate after that stage of attenuation, then we shall know at what stage the solution of the substance commences in distilled water.

The two other physical tests, the electric and the crystallization, are of limited application. Only such substances as sulphuric acid which in their solutions in water are conductors of current electricity can be tested by the former, and Dr. Demaree of Belgium, who devised this test, detected by it the presence of sulphuric acid in its twelfth dilution. Prof. Ostwald of Leipzig, who devised the latter test, could detect the presence of crystallizable substances only up to their 9th decimal triturations. These tests, delicate in their own way, are not sufficiently so for the solution of the vexed question of the extent of divisibility of material substances by mechanical processes.

The chemical tests, having to depend chiefly upon the changed color of the reagents employed, are necessarily not so delicate as the physical tests.

The living organism is the most sensitive apparatus which responds to the operation of forces of the slightest intensity. Hence the physiological are the most delicate tests for the detection of forces and their sources, only the reactions are difficult of interpretation. All homoeopathic cures and aggravations are in reality physiological tests of the reality of the homoeopathic preparations, but they are liable to be much mixed up with fallacy; the cures and the aggravations being so often independent of the administration of medicines, that they



require to be themselves tested by collateral evidence. Hence the necessity of having recourse to chemical and physical tests so far as available. But these tests, as we have seen, are far from being delicate enough, and hence the necessity of such physiological tests as may be free from the fallacies we have noticed above. Such tests have been furnished by the recent researches on the action of different toxic substances on micro-organisms.

These researches have established the toxic influence of water containing infinitesimal quantities of such substances as nitrate of silver and corrosive sublimate upon the *Aspergillus niger*, the former killing it in a solution of 1—1,000,000,000,000,000; the latter in a solution of 1—1,000,000,000,000,000,000,000,000. But the more astounding discovery has been made “that many substances *hitherto reputed insoluble in water*, such as the metals gold, silver, copper, iron, mercury, lead, and zinc, *by their mere presence in water, possess this property.*” If this is a fact, and the authority which seems to establish it, the authority of Löew, Bokorny, Raullin, Naegeli, de Varigny and others, makes us hesitate to doubt it,—if this is a fact, what a field it opens out for speculation, how it shatters to pieces our preconceived ideas! Are these substances, which we had hitherto regarded as insoluble in water, really soluble in that liquid, our chemistry being too rude to detect their presence? Or, is it something which radiates from them which exerts such a destructively toxic influence on this lowly organism, the *aspergillus niger*? Whichever of these suppositions be true, and both cannot be false, the action of the Hahnemannian dilutions, if properly made, receive a confirmation undreamt of even by Hahnemann himself.

But the question still recurs, is there no limit to division of particles, admitting that all things are soluble; or, if there are somethings which are insoluble, is there no limit to the radiating influence which emanates from them? Dr. Dudgeon respectfully doubts Mayerhofer's statement that he detected particles of the metals as high as the 12th and 14th dilutions, but believes, on the strength of the fact that attenuations beyond the 12th are efficacious, that “long-continued trituration must put the metal in a condition to be actually dissolved in the fluid with which it is mingled for the subsequent attenuations;” and he believes also that, “as regards a soluble substance, there is no conceivable

limit to its subdivision." He maintains that "we have no reason to suppose that it does not become equally diffused through any amount of the solvent with which it may be mixed by vigorous shaking."

We have seen that, though mathematically there can be no conceivable limit to the divisibility of matter, there must be a limit for each substance so far as its identity as such is concerned, if, as there is every reason to believe, it is really composed of atoms or molecules. Where this limit is fixed for any particular substances none of the recent researches, astounding as their revelations have been, have succeeded in discovering. They have succeeded so far that they have removed that limiting point beyond where it was supposed to be, and have thus proved the necessity of revising our calculations as regards the sizes of the atoms. However this may be, if there is a limit, the homœopathic dilutions cannot be continued *ad infinitum*, without losing the actual presence of the substance which is diluted, after a certain degree of dilution.

And when that degree has been attained, when the diluting medium has ceased to contain a single molecule or atom of the substance, would it be useful to continue the dilution further? The answer to this question will depend upon the answer to another question. Admitting that the atom or molecule as a centre of force, can impart its specific thrill or motion to a medium in which it is placed, can a portion of this medium, after having received the atomic or molecular thrill of a particular kind of atom or molecule, retain it in absence of the atom or the molecule, and communicate it to a similar or a different medium? It is impossible to demonstrate this point either way, but the likelihood is that the answer to the question must be in the negative. We have analogies in support of this position. Thus sound and light are modes of motion, the one of the particles of the atmospheric air, the other of the particles of the all-pervading ether. But they cease when the sources which caused the motion are removed.

In the last number for May and June we put to ourselves a question to which we have not yet been able to return an answer. The question is this—How long should the process of trituration or of succussion be continued for each preparation or attenuation?

Hahnemann's regulation time was one hour for each dilution or potency, as he called it, when at the height of his dynamization theory, including 24 minutes for scraping the triturate in three instalments, so that the actual length of time for trituration was 36 minutes, as will be seen from the following extract from the *Chronic Diseases* :

This (one grain of medicinal substance) is first put on about one-third of 100 grains of pulverized sugar of milk, and placed in an unglazed porcelain mortar, or in one from which the glaze has been first rubbed off with wet sand ; the medicine and the sugar of milk are then mixed for a moment with a porcelain spatula, and the mixture is triturated with some force for six minutes, the triturated substance is then for four minutes scraped from the mortar and from the porcelain pestle, which is also unglazed, so that the trituration may be homogeneously mixed. After this has been scraped together, it is triturated again without any addition for another six minutes with equal force. After scraping together again from the bottom and the sides for four minutes this triturate, the second third of the sugar of milk is now added, both are mixed together with the spatula for a moment, triturated again with like force for six minutes ; then having again scraped the triturate for four minutes, it is triturated a second time (without addition) for six minutes more, and after scraping it together for another four minutes it is mixed with the last third of the powdered sugar of milk by stirring it around with the spatula, and then the whole mixture is again triturated for six minutes, scraped for four minutes, and a second and last time triturated for six minutes.

It does not appear how Hahnemann came to fix upon thirty-six minutes as the time necessary for trituration in order to reduce a substance to a certain degree of minuteness in order to develop their hidden powers, to liberate their spiritual forces. It must strike as singular that the same length of time should be thought necessary for triturating the hardest and toughest metals, the soft but insoluble oxides and salts, as well as the soluble oxides and salts, the insoluble liquids such as petroleum as well as the soluble vegetable juices. It must have been, we suspect, more for the sake of uniformity than for any thing else that this time was fixed. It stands to reason that different lengths of time must be required to reduce different substances to the same state of attenuation by the triturating process ; and that if 36 minutes are necessary for gold or platinum, less would be necessary for calcaria, magnesia, &c., and still less for the vegetable juices. These times can only be ascertained by repeated experiments, and it is easy to see how difficult and complicated these experiments must be, when we remember that patients are their subjects.

(To be Continued.)

## OLEUM ANIMALE.

Johann Conrad Dippel (1673-1734), the German theologian, alchemist and chemist, the discoverer of Prussian blue, was the first to prepare this oil from the distillation of bone. It is hence generally known as Dippel's oil or bone naphtha. Dippel offered it as a panacea, but it was soon found to possess only limited therapeutic virtues. The following from Pereira gives nearly the whole of the available information regarding the drug: "When animal substances (as bone or hartshorn) are subjected to destructive distillation, a fetid volatile oil is obtained, which is commonly called *animal* or *Dippel's* oil. That which is found in commerce is obtained in the manufacture of bone black. It is identical in its nature with the *Oleum Cornu Cervi*, or oil of hartshorn, formerly used in medicine. As usually met with, it is a thick, brown, viscid oil, having a most repulsive odour. By distillation, however, it may be rendered colorless and limpid, but is soon altered by the action of air and light. Its ultimate constituents are *Carbon*, *Hydrogen*, *Nitrogen*, and *Oxygen*. It contains ammonia, and therefore has an alkaline reaction. Unverdorben alleges that it contains four oily salifiable bases, to which he has given the names of *odorine*, *animine*, *olanine*, and *ammoline*. Reichenbach has obtained *creasote* from it, and ascribes to this principle the supposed virtues of animal oil. Whatever may be its active principle, animal oil is undoubtedly a very powerful agent. In large doses it acts as an energetic poison, operating in two ways, locally as an irritant, remotely as a narcotic. Swallowed in moderate doses, it stimulates the vascular and nervous systems, and is esteemed antispasmodic. It has been employed as a local agent in bruises, gangrene, porrigo, and other diseases of the skin. Internally, it has been used to prevent an attack of epilepsy or ague, as a stimulant in low fevers, and as an antispasmodic in hysteria and other affections of the nervous system accompanied with convulsive movements. Bremser used *Chabert's oil* (prepared by mixing three parts of oil of turpentine with one part of Dippel's oil and distilling three parts) as an anthelmintic in tapeworm. The dose of animal oil is a few drops, cautiously increased."

According to the British Homœopathic Pharmacopœia "the chemical composition of this substance is most complex; it

contains at least all the following substances: *Methylamine*, *Ethylamine*, *Propylamine*, *Butylamine*, and *Amylamine*; *Aniline*, *Pyridine*, *Picoline*, *Lutidine*, *Pyrrol*, *Benzene*, and a mixture of several *Nitriles*." As regards its Characters and Tests we are told that it is—"Limpid, very liquid, specific gravity 0.75, inflammable, of a disagreeable penetrating odour, and a taste, at first acrid, then bitter. It is very volatile, and usually colorless; but exposed to light, it becomes thicker, yellow, then brownish, and at last blackish brown and viscid. Soluble in alcohol and ether in all proportions. A drop let fall on white paper and then exposed to the air evaporates without leaving a greasy stain." It is recommended to be kept in well stoppered amber glass bottles. It will be seen that neither Ammonia nor Kreasote is mentioned as a constituent, and that nothing is said about its reaction, whether it is alkaline or acid or neutral.

The drug has ceased to have any place in the old school *materia medica*, probably from the extravagant expectations formed of it having been disappointed. It was proved in our school by Nenning, and Drs. Schreter and Trinks, the result of which in schema form was given in the *Materia Medica* of Hartlaub and Trinks, and which Dr. Allen has transferred to his *Encyclopædia*. Notwithstanding its copious pathogenesis it has been but seldom used by homœopathic physicians, and may be said to have fallen into disuse. Farrington does not mention it in his *Clinical Materia Medica*, nor does Hughes in his comprehensive *Pharmacodynamics*. The only cases on record, before September, 1896, where it was successfully used, were the case of *neuralgia of the spermatic cord* cured by Dr. Blakely with the 18th potency, the case of nervous asthma and the cases of migraine cured with the 2nd decimal potency by Dr. Zwingenberg.\*

\* "I had a case of *neuralgia of the spermatic cord* of long standing, where the patient suffered from most excruciating attacks three or four times every year. The pains were as if the testicles were seized by a hand and pulled very severely. *Oleum animale* 18th potency, gave almost immediate relief, and the pain has not recurred since (now two years). (Dr. Blakely, H. M. Pen. H. Society, 1869)."—*Rau's Record*, 1870.

"Zwingenberg sends a report of migraine, where his usual sheet-anchor, *Sanguinaria*, failed, cured by the second decimal dilution of *Oleum animale Dippelii*, five drops in warm water, a dose morning and evening. A lady, moving in the upper ranks of society, suffered always the day following a large and fashionable party, where she usually wore a heavy diadem on her head. The polyuria, of a perfectly clear urine, led the doctor to the application of Dippel's oil; in fact, in all nervous disorders this polyuria

But as Pereira said, it is undoubtedly a powerful agent, and if obtainable of uniform composition which it would have if prepared from the same materials and by the same process as the proved drug was, it deserves a trial. Any light that may be had regarding its use from fresh proving and further clinical cases will, we doubt not, be welcomed by our readers. We, therefore, here give the excellent paper on the drug read by Dr. C. L. Olds at a meeting of the Central New York Homœopathic Medical Society held, Sept. 17, 1896, and the interesting discussion that followed.

#### DR. OLDS'S PAPER ON OLEUM ANIMALE.

Oleum Animale has existed in the Homœopathic Materia Medica, in a partly proven state, since the time of Nenning, Hartlaub, Schreter and Trinks, who made the first provings. It has been but little used by the homœopathic profession; consequently it is mentioned in but few clinical records.

I have recently made a proving\* of this substance, which may, perhaps, be turned to our mutual advantage, by a review of the symptoms thereby developed. It should be a rule of the profession, that any remedy having the slightest proving should receive careful consideration. Each peculiar symptom of a partially proven remedy, should be treasured in the store-house of our brain; as at some future time it may become of inestimable value in relieving the sick. I say, "in the store-house of our brain," because the disease picture of a slightly proven remedy is not sufficiently clear-cut to form a distinct image before our mental vision.

A partly proven drug, with its one or two peculiar symptoms, is like a painting over which a veil is thrown, leaving exposed one corner, where a crimson garment is seen. Unless we remove the veil, or fully prove the drug, the covered treasure of art or of nature can only be conjectured. Until this is done, we perceive only the exquisite coloring of the crimson garment, or the peculiarity of symptoms suggesting a special use of the drug.

The mental state produced by Oleum Animale is that of marked sadness and loqueness of spirits. Nothing in life delights the prover, who, if a woman, sits absorbed in morbid fancies, pondering and dreaming; noticing neither persons nor things; giving neither word nor look. If she speak, it is in a low tone, as if she were overcome by some great calamity. The mental attitude causes ill-humor and irritability, and the prover, if questioned, will hardly give a civil answer. He gives an indication for the oil. He cured a few years ago with the same oil an old asthma nervosum, for which he could not detect any organic basis, but which was caused by repelled foot-sweat. Another case of migraine was also cured by the same remedy."—Hirschel's *Klinik* (6, 1875) quoted in *Hahn. Monthly*, July, 1875.

\* It is a pity the author does not give the details of the proving, that is, upon how many persons it was made, and whether with the crude drug or with dilutions or with both.—EDITOR.

She has "the blues" as badly as *Pulsatilla*, but is not such a mild little creature. Sad, absent-minded and gloomy, she is filled with lascivious thoughts and fancies.

The headaches of *Oleum Animale* are various: throbbing, dull, pressive, knife-like, sticking, drawing, piercing, etc., one type of which is semi-lateral, starting at the base of the brain, and extending to the eye of the corresponding side; worse by motion, by exertion, after eating, and better by rubbing.

Here may be mentioned two general modalities of the remedy: most pain symptoms are better by rubbing, *i. e.*, those of the head, scalp and eyes; in fact, those of the entire body. Likewise, most symptoms are worse after eating, especially after dinner. Even the mental depression is greater at that time. Another general worse, that might be noticed here, is the worse as to time: it is from 2 to 9 p. m. The 2 p. m. worse is especially marked, and coincides with the worse after dinner. The pains in the head are also worse by stooping, by lying down, or during the menses.

The *Oleum Animale* headaches may, then, be tearing, sticking or burning, with sadness, irritability, and a marked increase of symptoms after dinner, that are better by rubbing.

The vertigo occurs only in the morning, in bed, or in the open air.

There are itching, burning vesicles upon the scalp, which are better by friction; there is a numb, paralyzed feeling in the left side of the head; tenseness of the muscles of the scalp; and a sensation as if the skin of the scalp had been cut and re-united.

The abnormalities of vision are: mistiness, glistening bodies before the eyes, and a sensation as if a skin were hanging down over the eyes. Here, again, we find an effect from eating: the eyes lachrymate, when the prover eats. There is smarting and burning in the eyes, as from salt, with agglutination of the lids in the morning; spasmodic twitching of the lids, and shortsightedness.

A further and quite general modality is found in the *burning* of various parts of the body: there is *burning* in the eyes, the scalp, the stomach, the abdomen, and during micturition, etc., etc.

Various sounds are heard in the ear: ringing, singing and roaring; tones seem to reach the ear as through a great noise. There is an aversion from noise, and a sensation of heat, coming from the right ear.

When this sad, silent patient has a cold, there is a watery, excoriating discharge from the nose, with much sneezing that causes a bursting sensation in the chest. While the patient, or prover, is in the house, there is drawing, pressing pain at the root of the nose, and the nose and head feel stopped; but, when the subject is out in the cool air, there is a drip, drip, drip of water from the nose, that relieves the head.

This remedy produces chilliness, like *Nux v.*, *Cycl.*, and *Kali c.*; but, unlike those remedies, the chilliness, attacks the patient in a warm room, and is better in the open air. The catarrhal symptoms, also, are better in the open air.

The expression of countenance found in this sad, silent, moody sub-

ject, bears out our expectations, and is borne out in the proving. The expression is that of one given to dwelling too much upon one topic, so much and so long that a gloom has settled upon the face. The face has become pale and earthy in appearance, and, even when it is red, it is cold to the touch.

Cramp-like pains are produced in the face, similar to those found in other parts of the body. The skin of the face feels tense and drawn; a sensation of contraction, such as was noticed among the sensations of the scalp. There is a burning of the skin, followed by desquamation, the sensation better by rubbing. There is twitching of the lips, and a swelling beneath the right lower jaw. A peculiar symptom developed is, "the malar bone feels as if it were pulled forcibly upward."

There is a greasy feeling in the mouth, and an accumulation of large quantities of saliva which, at times, is snow white.

This remedy will be found useful in a toothache that is darting and tearing, better by pressure, and accompanied, also, by a sensation of icy coldness coming from the tips of the teeth.

Oleum animale produces relaxation of the buccal mucous membrane (*Causl.*), so that it is almost impossible for the patient to keep from biting the cheek while eating. Oleum animale also causes soreness, as if the tongue had been burned by hot drinks; as also, a sensation as of dried white of egg upon the lips. *Alum*, *Bar. c.*, *Mag. c.*, *Ph. ac.*, and *Sul. ac.* cause a sensation as of dried white of egg upon the face.

The sensations of soreness, rawness, burning (as from red pepper), dryness and constriction, may attack either side of the throat: with this condition, there is a sensation as if cold air penetrated to the throat, although the air be warm. The throat symptoms are better by eating and drinking, and worse by empty swallowing, like *Lach.*

Desire for soft-boiled eggs, or for bread only, with an aversion to meat, is peculiar to Oleum animale.

Other peculiarities produced in the stomach are: a sensation as if water were in the stomach, which sensation extends even to the throat; as if the stomach were bruised, sensitive and heavy; as if the food did not digest; as if the stomach were entirely empty, in the early morning; as of pressure better by pressure; as of distention, with gas; as of burning, like fire; as of coldness, like a lump of ice; as of constriction and contraction.

Many of the stomach symptoms are better by eructations; the nausea; the sudden inclination to vomit, with a sensation in which the stomach seems to turn quite over; the gurgling and rumbling; the burning in the stomach, are all better by eructation.

Eructations and passage of flatus are frequent; the eructations taste like urine, (*smell like old urine, Agnus. c.*) and burn.

Cutting and sticking pains, at every deep breath, attack the regions of the liver and spleen.

There is much distention and rumbling in the abdomen, from flatus. The pains of the abdomen go from right to left above the navel, and



from left to right below the navel. Many of the cutting and colicky pains are better by passing flatus, better by sitting doubled up, and worse by food, drink, motion; these pains are frequently followed by liquid stools that relieve. The sensation of emptiness in the abdomen, occurring in the morning, coincides with that in the stomach.

There is much straining and effort in voiding stool, and some ineffectual urging. The stool may be followed by a burning like fire in the anus, or by a beaten, bruised sensation in the intestines.

The urine is greenish, having a fishy odor, or, it is like muddy water with clay-like sediment. There is great urging to urinate, with passage of but few drops at a time, accompanied by intense burning in the urethra.

Oleum animale produces much swelling and tenderness of the testicles, and many drawing, tearing, excruciating pains of neuralgic character along the spermatic cords. It causes a sensation as if the *testicles were seized and pulled forcibly upward*. It affects the right testicle and spermatic cord, more than the left.

A marked symptom produced by this drug, is early and scant menstruation. *Many* drugs produce too early and profuse, or too late and scant, while *few* produce both early and scant menstruation. The flow is black and is accompanied by colicky pains, backache, headache, and great languor of the hands and feet.

This remedy should be found useful in chest complaints characterized by sticking or stinging pains, or by sticking as from hot needles, accompanied by rush of blood to the chest, or by oppression and constriction of the chest, with a dry, hacking cough, or by spasmodic constriction of the throat at night. It should also be useful in cases in which asthma has been caused by suppressed foot-sweat. These conditions, together with the general peculiarities of worse at 2 p. m., and better in the open air, are indications of the sphere of Oleum animale. This remedy causes a violent oppression of the chest, worse by ascending stairs, and better by emission of flatus. It also causes a bubbling sensation as of liquid in the chest.

The pains in the breast are better by rubbing. This symptom when occurring in pale, irritable, gloomy patients, subject to general chilliness, and when accompanied by worse at 2 p. m., and after eating, should indicate Oleum animale.

This remedy causes a sprained feeling in the small of the back and cracking of the vertebræ on raising the head, (like *Aloe*, *Nat. c.*, *Nit. ac.*, *Nux v.*, *Stram.*, *Sulph.* and *Thuja*).

Stretching, drawing, cramp-like, rheumatic pains are found in the extremities. These are better by motion and rubbing. The burning, tearing pains in the finger, as from a felon, are better by walking about. In fact, the provings frequently show restlessness to be a marked symptom: restlessness at night, tossing about in bed; a restlessness that at all times keep the subject moving or working rapidly.

This remedy should prove useful in intermittent fever, when there is alternation of heat and chill, without perspiration or thirst.

## DISCUSSION ON THE PAPER.

The paper was accepted and ordered to be published, and thanks were extended to Dr. Olds for so interesting and valuable a study.

The subject of the paper was then presented for discussion.

Dr. Carr saw in *Oleum animale* many symptoms resembling *Arsenicum*, many resembling *Pulsatilla*—irritability being added to the latter remedy—and some resemblance to *Silicia*—asthma caused by a suppressed foot-sweat.

Dr. Dever remembered a case of toothache that he had cured with *Oleum animale*. The patient was extremely irritable and relieved the pain by *pressing the teeth tightly together*.

Dr. Leggett related a case in which she had verified symptoms of *Oleum animale*.

On May 13, 1896, a patient, a woman, aged 56, weighing nearly 300 lbs. (having been under constitutional treatment for some time, with the following conditions: uterine tumor, engorged liver, and considerable cerebral congestion), presented the following symptoms:

She complained of a sensation as of "water rushing back and forth" in the stomach, and fancied that the tumor had increased to the size "it was years ago." She thought that she had had a "bilious attack" on the previous Sunday.

She said that she had been "walking, standing and shopping a great deal" and had "eaten many sweets." She is Dutch and fond of good living.

Study of the repertory under stomach, showed three remedies with the symptoms: "water, as if full of;" *i. e.* *Millef.*, *Oleum animale*, and *Phell.* Study of these remedies showed *Oleum animale* as the nearest similar. *Oleum animale* 1m, one dose, was given.

A month later, the report showed the patient to be "better in every way." Two months later the report was followed by a second prescription of the same remedy, in the same potency, with equally good results.—*The Hahnemannian Advocate*, April 1897.

## MAGNESIA PHOSPHORICA.

The credit of introducing this salt in the treatment of disease is due to Dr. Wilhelm Heinrich Shüssler. He used it in what he called minimal doses but which are the same as the homoeopathic infinitesimals. He used it as a tissue remedy, but his suggestions were based upon the provings of the other magnesian salts which exist in the materia medica of our school, namely, the Carbonate, the Muriate, and the Sulphate. He thought that the Phosphate "acts quicker and is more secure" than the last three salts. Notwithstanding that his recommendations were based upon hypothetical and uncertain data, the remedy has been found to be of great use in many disorders, and some

members of our school have subjected it to provings which, however fragmentary and made with high dilutions, are to be welcomed as preliminary attempts at a complete proving. Speaking of the remedy in quite enthusiastic language Drs. Boericke and Dewey say: "Since its introduction by Schüssler this magnificent remedy has been proved by Drs. W. P. Wesselhoeft, J. A. Gann, and other members of the I. H. A., by which the main indications of Schüssler were verified and others added, thus giving us a polychrest of the highest order." These provings, as well as the symptoms arranged in schema form by Dr. H. C. Allen, were published in the *Medical Advance* for December 1889. As they are not to be found any where else—Dr. T. F. Allen's *Encyclopædia*, having been completed in 1879, could not contain them—and as they are of considerable importance in the proper employment of the drug, we have transferred them bodily here.

. PROVING BY W. P. WESSELHOEFT, M. D., BOSTON.

Proving by Mrs. E. B. W., aged 23, brunette, very strong healthy woman. Has always enjoyed perfect health. Has had one child.

On Saturday, January 19, took a tablespoonful of a solution of two drops of the 30th in six tablespoonfuls of water, every four hours, four times.

On Sunday, January 20, took one tablespoonful on waking, another four hours later.

Felt chilly after dinner (dined at 6 P. M.) on Saturday and more so on Sunday and Monday, less on Tuesday at the same hour, between 6 and 7 P. M. The chills ran up and down the back, with shivering; desired more clothing. No other symptoms.

January 25. Took medicine twice on rising and again four hours later. The same chilliness up and down back returned again in the evening at the theatre; chills did not appear till after dinner, as usual, although the meal was taken much later.

January 26. Sharp, shooting pains all over the body, and feeling very tired, retired at 7 P. M. Legs ached after getting in bed, and felt so chilly that extra covering had to be put over her. The chills were mainly up and down the back. On waking the next morning had sharp neuralgic pains behind right ear. These pains were intermittent, greatly aggravated by going into the cold air. Intensely aggravated by bathing face and neck in cold water.

Neuralgic pains behind ear, lasted all day and through the following night, and were intermittent and very sharp. Fell asleep towards morning and awoke free from pain. Went to dinner party in the evening and the same chills appeared *during* dinner (7 to 8 o'clock) and lasted for an hour after the meal; the sharp intermitting pains behind ear troubled her during the dinner and for some time after it.

No further symptoms; but declined to take any more of the medicine on account of the neuralgic pains it produced.—*Trans. I. H. A.* 1889.

PROVING BY J. A. GANN, M. D., WOOSTER, OHIO.

I herewith append a brief report of the young man to whom I referred in a former letter, and upon whom I stopped the proving on account of what I supposed an attack of genuine bilious fever. It may not be as it would have been, because, not thinking of the possible action of the *Magnesia phosphorica* I immediately treated him for the fever.

However, you may be able to glean a little wheat from the chaff.

Arthur K., aged 16, light complexion. General health very good, the only variation being headache, which troubles him constantly while attending school, morning and evening, day and night, in the house and in the open air. Appetite and habits regular. Family history one of health.

He took.

January 31. Three drops of *Magnesia phos.* 200.

February 1. 8 A. M., five drops; 12 o'clock, ten drops.

February 2. 10 A. M., fifteen drops: says his head seems clearer, can think better, and headache entirely gone.

Then stopped giving him the remedy.

Three days thereafter, on February 5, he did not feel well, yet went to school, but came home in the afternoon. When I saw him he was as near a hot fire as possible, with frequent pulse, flushed face, high fever, but very chilly and aching all over.

I sent him to bed, and further examination added the symptoms of what I diagnosed as an ordinary attack of bilious fever. The fever increased in intensity through the night and next day; there was bilious vomiting, at times streaked with blood; intense headache and some delirium at night; says he cannot sleep; no appetite, but considerable thirst.

After the third day the symptoms began to modify rapidly and by Sunday he was able to sit up and resumed his school work the middle of that week.

I am sorry that I did not realize the possibility, or probability of a proving of *Magnesia phos.* and proceed accordingly. One good result produced by the proving is that his headaches have entirely disappeared, and he can study with ease.

Mattie K., aged 18, sister of Arthur, light complexion, brown eyes and hair, weight about 150 lbs. Health generally good; menses not as prompt as they should be is the only irregularity.

March 26. Put six cones medicated with *Magnesia phos.* 200 in half a glass of water.

Gave two teaspoonfuls every two hours from early morning until bedtime.

March 27. Prepared solution similar to the above to be taken the same way. Then waited for results.

It was in the second week before the young lady complained of not feeling well; but she has no idea whatever that the medicine I gave her some days before could in any way have been the inducing cause; for when taking it she laughingly said she "could keep on taking it, for it was good, and could hurt no one."

I stopped giving it after two days, she supposing I had stopped because the medicine had failed of its intended results.

You will thus see it was a proving as far as it goes.

#### SYMPTOMS.

April 4. Complains of soreness of throat, especially in the muscles of the right side of neck; feels inclined to hold head to the right side, and yet cannot say that that position relieves it. The throat is very red; she feels quite indisposed.

April 5. Pain in neck and throat worse; more pain in the back part of head; pulse more frequent; general feverishness; tongue light yellowish-white. Says she feels very badly; is also quite chilly at times. Gave her Placebo every two hours.

April 6. It is with great difficulty that she could get up; feels tired and unrefreshed, did not rest well. All the former symptoms intensified. Throat very red, and just above right tonsil (and a little back) the parts seem puffy as if they contained serum.

Head aches *very bad*, face *flushed*, the pain in back part of head now extends over the whole head; says she feels sick at the stomach, aches all over. The symptoms worse from middle of the morning until towards evening when she thought she felt a little easier.

Tried to walk a little in the open air and says she thinks it made her feel better. Continued the Placebo.

April 7. This morning feels better than for several days. Complains of some aggravation of symptoms about noon. Continued Placebo.

April 8. Is about her work as usual, says she feels well, only weak.—*Ohio State Society.*

#### PROVING BY A. P. OHLMACHER, M. D., SYCAMORE, ILL.

January 15, 1889. At 2 P. M. took a small powder of the 200th of Magnesia phosphorica. Repeated the dose at 3 P. M.

Darting pains, lightning-like, through the head and chest the same day. Slept good that night.

January 16. Dull headache front and side of head, worse in the evening. Feeling of fulness after eating. Some sharp pains in chest more on right side.

January 17. Awoke with bad taste in mouth. Food does not taste right. Complained of coffee being tasteless. Rumbling of gas in bowels; uncomfortable feeling in the bowels as if diarrhoea were coming on. Gas passes freely upwards and downwards. Do not retire until 12 o'clock and then sleep very poorly. Awake about 3 A. M. and remain awake about an hour (very unusual.) Dull pain in head continues; all symptoms seem worse in the evening.

January 18. Bad taste in mouth, fulness in bowels and belching of gas continues. Appetite remains good. About 8 P. M. on going

out of a warm room into the cold air it seemed to produce great chilliness; shaking and teeth chatter as with an ague chill. This feeling continues until entering a warm room again, when all the symptoms are better. Sleep very poorly and dream a great deal. Awake often.

January 19. Symptoms of head, bowels, etc., continue as before. A feeling of rawness in the mouth, for the first time this evening. Feels as if mouth were cankered, which is not the case. Warm food seems hot and burning. Sleep somewhat better at night.

January 20. Three evacuations of bowels to-day (unusual); some pain in bowels; darting pains in chest which radiate from pains in bowels. Rawness in mouth continues, tongue a bright red color. At dinner after getting warm from eating (oyster stew, etc.) have a great prickling over head and forehead, a feeling as if a fine brush were being rubbed over the parts; continues about fifteen minutes. Dullness in head, worse in evening, continues. Indisposition to study. Sleep fair.

January 21. Rawness in mouth still present; bad taste; fullness in bowels; gas, etc. Dull headache in morning. A drink of cold water at 9-30 A. M. starts a colicky pain in stomach which radiates to bowels, very severe; feels better on doubling up; better by walking about, by rest and sitting quiet; some belching of gas seems to ease the pain. Darting pains through the chest which radiated from the bowels. Chilliness again in the evening. After going out doors again and walking a short distance, pain in the bowels to the right of umbilicus commences, which continues until going in doors. Better from warmth. Notice the same darting pains in chest, most on right side. Oppression in breathing. Desire to take a deep inspiration. Oppression on first entering a warm room which was better after being in a short time. Sleep disturbed by troublesome dreams and awake with an impression of some one being in the room—saw some one standing over me.

January 22. Fullness in bowels not so marked; bad taste in mouth and rumbling of gas persist. Some darting pains in the chest. Dull feeling in the head more marked than ever. Felt better in the evening and slept better at night.

January 23. Feel all right to-day.

General symptoms: Dull feeling in the head, not an ache. A feeling of pressure in the head. Frontal Dullness amounted at one time to a pain. Feeling of general tightness across the bowels. Indisposition to study generally. Indisposition to mental effort.

PROVING BY ALICE B. CAMPBELL, M. D., BROOKLYN.

*First Proving:* 200 Potency.

Mrs. M. D., a widow, about 55 years' old, medium height, plump figure, weight 130. Took six powders of 200 potency two hours apart.

The last powder was taken at 7 o'clock on the morning of November 13, 1888.

On the evening of the 26th, between 7 and 8, had what seemed like a slight chill, or to make it plain, I felt as though cold water had been poured down my back, followed by a succession of little shivers.

Morning of the 27th, severe pain in the bowels, accompanied by a looseness. The pain was at the upper and middle of abdomen, and was sharp and constant, lasting about two hours. This began at 7 o'clock. Two movements of the bowels took place. The first did not relieve the pain. In quantity the first was enough for three ordinary movements. It presented the appearance of yellow clay mixed with water. The second, which followed about one hour after, was not so large nor so loose. After the second the pain began to grow less.

At 11 of the same day, the chill symptoms reappeared. The chill began in the back of the neck, and gradually crept over the whole body. About 1 o'clock there was a very vivid flush on the left cheek and ear. The flush lasted about thirty minutes. There was neither heat nor sweat.

28th. At 10 A.M., the chill symptoms again appeared. They were slight and of short duration. No thirst at any time.

29th. At night, decided symptoms of rheumatism in the right arm and shoulder, which lasted twenty-four hours. It began in the shoulder and crept down the arm. It was a steady ache and felt best when kept still. I did not get to sleep readily on account of the aching, but when asleep was not disturbed.

Nov. 30th. Everything seemed at a standstill, with the exception of a tired, languid feeling, which seemed to take my strength away. I felt as we often do in hot weather. It was an effort to walk much till the morning of the 5th of Dec. when I awoke with a headache, which began in the back of the head and steadily extended all over the head. A feeling of nausea accompanied it. At 9 A.M. a very decided chill set in which lasted three hours. I had to go to bed, and there I lay and shook. Neither sweat nor fever followed.

Dec. 6th. A slight headache, which did not last long as an ache, but left a confused light feeling for the day.

Went along all right until December 14, when the aching began early in the morning, in the back of the head at the base of the brain, I think, and gradually went over the head and settled over the eyes. There was a sick feeling with it and I felt best out in the cold air.

All right till the 20th, when, on going to bed the aching in my right arm began and every morning since the 20th, till this, January 6th, I have awakened with that steady ache in the right arm from the shoulder to the elbow. After I've been up a while it disappears. At the same time, the 20th, a bunion on my left foot which has not troubled me for some years, began its burning, stinging pain, and kept it up till the 4th, when it almost ceased.

Jan. 1st. At night a severe attack of wind colic and such vomiting, which relieved me of pain, but made me weak. Tuesday, afterwards, my mouth began to get sore on the left side, or rather it's my tongue and lip. It has that cut, gnashed feeling; it's not canker, although there is one canker sore on the lip.

Since the sore mouth, I'm still suffering. It is painful eating. I rinse the mouth with hot water.

[After each powder a taste of magnesia and chalk was observed by prover. She does not know what she has been taking.—A. B. C.]

*Second Proving: 1000 Potency.*

This proving was made three months after the one above. Six powders of the 1000 potency were taken two hours apart.

The last powder was taken on February 17. The same peculiar taste (like chalk and Magnesia) was observable after each, as with the former powders.

On the 23d my mouth began to be very sore, so that it was difficult to eat; confined mostly to the right side. The sores were both red and raw looking, and were on inside of cheek, gums, tongue, and lips; not in the corners of mouth at all. Very sore to touch, and particles of food, also liquids caused a smarting, burning sensation. This agreeable (?) mouth lasted a week.

Feb. 26th. A terrible headache on awaking at 7 A.M., which began in the back of head, then reached the top and gradually took in the whole head. It was a continuous, dull, ache, accompanied by slight nausea. The pain lasted till 5 P.M., when chill symptoms appeared. The symptoms were the same creepy feeling up and down the back, and gradually all over the body. There was no shaking. This lasted about an hour. Then came that warm suffocating feeling which made me feel like throwing everything off. This was distinct from the chill, spasmodic, and lasted probably half an hour. There was neither thirst nor perspiration.

Feb. 27th. Same headache on waking which lasted till 5 P.M. with same sick stomach as before. The symptoms of the previous day repeated themselves. I was so sick with these symptoms that I had to go to bed. The feeling that made me go to bed was of being worn out, and completely exhausted. The chill lasted one hour and at the end of that time the exhausted feeling left. A cold in the head and cough followed the chill, lasted about three days. It was both dry and loose. That seems contradictory; but for a while there would be such a stopped up, stuffy feeling, and then there would be a profuse discharge of a white, thin substance, not watery. The cough came on after the headache left. It was a violent, dry cough and nothing in particular excited it. I coughed whether I talked or kept still, whether I ate or refrained from it, but I lost my appetite and at last took Nux 30, as cough was too annoying.

Feb. 28th. The bad feeling in the right arm reappeared and continued by spells up to the 20th of March. It was a dull, heavy aching pain which began at the shoulder, and went down to the wrist. It began with my waking. Cold, motion and pressure aggravated. Nearly ever since I began taking the powders, a corn and bunion have been so painful and my feet have been so tender, that at times I could not bear my ordinary shoes. The corn and bunion were sore to the touch, and the pain was a stinging, burning, smarting; at times, a spasmodic lancinating pain.



March 3d. The same kind of headache came on at waking. It lasted about two hours and then disappeared. There were no chill symptoms but with it was a tired, languid feeling.

The first joint of the middle, third and little fingers of the left hand of prover, have become enlarged, though painless.

May 20th. The day after writing to you, the right side of my head broke out with what seemed like blood boils. There is a redness attending them, and a sore feeling about them, but as boils they amount to nothing; go away as they come.

June 22d. My joints remain the same. The improvement is so slight it is scarcely observable. The tingling and smarting sensation disappeared long ago. There is no unusual feeling only in my bunion, which at times burns, smarts and stings. But something else has come to the front, not my head, but the scalp. I wondered how it could be that my head was so dirty for I am so particular; but I have come to the conclusion it is not dirt at all. But what is it? Is it something more that medicine has brought out? If I should comb my head twenty times a day I would comb out just such scales as I send you. It's not a nice thing to send, but I knew if you saw it, it would be better. My scalp feels like a grater, and the fine particles combed out feel like sand. The hair is dry and coarse. I use nothing but water and vaseline.

May 31. "The first joints of fingers of both hands are still swollen, though painless. That of the little finger, left hand, is as large as two kernels of corn in the milky stage, and transparent like the corn. The other first joints on fingers of both hands look as large but do not project so sharply, nor are they transparent. The Magnesia phos. certainly found a vulnerable point in her constitution. Why would not a higher potency cure the trouble? That is the way I use my quinine and tobacco subjects." A.B.C.—*Trans. I. H. A.*, 1889.

#### SCHEMA OF SYMPTOMS BY H. C. ALLEN, M.D.

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**Characteristic.** *Is best adapted to lean, thin, emaciated persons of a highly nervous organization; but acts promptly in stout, fleshy people when well indicated.*

Prefers dark to light complexion.

*Affections of the right side of the body:* head; ear; face; chest; abdomen; ovary; sciatic nerve (Bell., Bry., Chel., Kali c., Lyc., Pod.)

*Pains:* sharp, cutting, piercing, stabbing, knife-like; shooting, stitching; lightning-like in coming and going (Bell); intermittent, paroxysms becoming almost intolerable, driving the patient to frenzy; often and rapidly changing place (Kali c., Lac c., Puls.); with a squeezing constricting sensation (Cal., Iod., Sulph.); cramping, in neuralgic affections of stomach, abdomen and pelvis.

*Great dread of cold air ; of uncovering ; of touching affected part ; of washing with cold water ; of moving.*

Attacks are often attended with great prostration and sometimes with profuse sweat.

*Languid, tired, exhausted ; unable to sit up.* (This is peculiar to both acute and chronic affections.)

Complaints from standing or working in cold water (Cal.).

Abdominal pains radiate from the umbilical region, and are attended by flatulent colic ; relieved by heat, pressure and bending double (Col., Plumb., Pod.).

**Aggravation.** Motion ; *cold air ; a drought of air or cold wind ; COLD WASHING ; TOUCH ;* lying on the back stretched out ; when eating.

**Amelioration.** HEAT ; WARMTH ; pressure ; BENDING DOUBLE.

**Mind.** Illusions of the senses ; sobbing ; crying ; laments all the time about pain in affected parts, with hiccough.

Drowsiness on every attempt to study (10th day).

Very forgetful (10th day).

What I could previously memorize easily in ten minutes would take me three hours, and then I would not more than half know it.

Mental depression and anxiety.

Dullness and inability to think clearly.

Indisposition to study ; to mental effort.

Mind seems clearer ; can think and study easier after a few doses of Magnesia phos.

**Head.** Headache : pains shooting, darting, stabbing, shifting ; intermittent and paroxysmal.

Headache : excruciating ; spasmodic ; neuralgic or rheumatic ; always relieved by external application of warmth.

Nervous headaches, with sparks before the eyes ; diplopia.

During the night, severe throbbing pressure on the vertex, left side, deep in the brain (2d day).

Dull headache, as if the brain were too heavy—after protracted mental effort (5th day).

Headache better towards evening but changing into a pressure above the eyebrows, especially right (5th day).

Headache : a dull drawing pain about the middle of the head, felt early on awaking ; seems to be connected with dyspeptic symptoms.

Headache, begins in or is worse in occiput and *constant while attending school ;* cured during proving.

Headache : a dull weight in the head after mental labor (8th day).

Head aches very bad ; face flushed, red ; pain began in occiput and extended over whole head ; sick at the stomach ; aches all over, worse from 9 or 10 A.M. till 4 or 5 P.M.

Pressive pain in the head, down through the middle of the brain (9th day).

Headache of school children ; constant on school days.

Dull, throbbing pain in temples.

Pain through temples, top and back of head, with sensation of fullness, worse from lying down.

Sore feeling in back of head and neck.

Sharp pain through temples worse at 11 A.M.

Sensation as of a strong shock of electricity, beginning in the head and extending to all parts of the body.

Pain in top and back of head extending down the spine, most severe between the shoulders.

Darting, lightning-like pains through head.

Dull headache, front and side of head, worse in evening ; feeling of fulness after eating.

Dull sensation, not an ache, in the head.

Sensation of pressure in the head.

Lightning-like pains shoot through the head in bi-temporal region.

Awoke with a headache which began in the occiput and gradually extended over the whole head, accompanied by a sensation of nausea.

Headache, began at base of brain, gradually extended over the head and settled over the eyes ; with it constant nausea ; better in open air.

Severe headache began in occiput on waking, extending over head, located over both eyes, with some nausea and terminated at 5 P.M. in a pronounced chill.

**Outer Head.** Severe pricking over head and forehead, as if rubbed with a fine brush (after becoming warm from eating).

Pustules or large pimples—"seemed like blood boils"—attended with redness and rawness, appeared on the right side of the scalp, but did not suppurate.

Large, white, shining scales can be combed out in handfuls. "If I should comb the head twenty times a day, large quantities of scales would come away each time."

Scalp feels rough, like a grater, and the fine particles combed out feel like sand.

**Eyes.** Double vision, horizontal (Gels.) ; sparks (Cal. f.) ; rainbow colors ; photophobia ; diplopia.

Eyes sensitive to light.

Pupils contracted.

Dark spots float before the eyes on attempting to read.

Dulness of vision from weakness of the optic nerve.

Nystagmus ; strabismus ; strabismus, spasmodic ; ptosis ; drooping of the lids, worse right side (Caust.).

Spasms or twitching of the lids.

Neuralgia : supra-orbital or orbital ; intermittent, darting, lightning-like pains, worse on right side or entirely on right side, relieved by warmth, exquisitely sensitive to touch.

Increased lachrymation, with the neuralgic pain.

Itching and heat in the lower left eyelid (5th day).

**Ears.** Nervous otalgia, intermittent and spasmodic ; better by heat.

Sharp intermittent pains behind right ear, greatly worse by cold air or washing face in cold water.

Neuralgic pains behind r. ear, lasted all day and through the following night ; intermittent, very sharp, worse by going into cold air or washing face and neck with cold water.

**Nose.** Alternate stuffing and profuse gushing discharge, worse from left side.

Smarting pain and raw feeling in left nostril.

Cold in the head was both dry and loose alternately ; for a time a stopped up, stuffy feeling, then a profuse discharge of a white, thin substance, not watery.

**Face.** Neuralgia : supra and infra-orbital ; of right side ; intermittent, spasmodic, darting, cutting, lightning-like pains, worse by touch and pressure and better by warmth.

Neuralgia of upper jaw and teeth, r. side, begins every day at 2 P.M. with the greatest precision and continues until I get warm in bed ; pain sharp, lightning-like, worse by cold, better by heat ; face swelled until it looked as if stung with bees.

Boring, pinching, "nipping" pains, driving out of bed and soon spreading over entire right side of face.

Neuralgic pains of right side, from infra-orbital foramen to incisor tooth, gradually radiating over the entire right side of face, worse by touch, opening the mouth to eat or drink, cold air, walking or riding in a cold wind.

Faccache, worse when body gets cold.

Face distorted from pains and weakness ; crampy colic.

Lockjaw.

Hydroa on the upper lip (7th day).

Convulsive 'witchings' of the angles of the mouth.

Neuralgia ; from washing or standing in cold water (Cal.).

Sensation of painful contraction at articulation of lower jaw, for several days, with a nervous backward jerking.

CASE I. Mr. J. M., a gentleman aged 72, spare and thin, of medium height, by occupation an architect, was attacked in September, 1885, by violent neuralgia of the infra-orbital nerve of right side. He is a plain liver, using neither coffee, tobacco, nor stimulants of any kind, very regular and methodical in all his habits, and had for years enjoyed most excellent health, hence was at a loss to account for this attack. He felt as well as usual, no inconvenience or pain whatever, until on opening his mouth to take the first mouthful of breakfast, he was suddenly attacked by severe lightning-like pain extending from the right infra-orbital foramen to the bicuspid tooth. On closing the mouth and applying hot water, the severity of the pain was mitigated and he was soon comparatively free unless he attempted to eat or speak. Under Belladonna 200 the pains gradually decreased in severity and he could partake of liquid food, but for several weeks was unable to chew solid food. His teeth (at 72) are sound, and have never troubled him, and a careful inspection by the dentist failed to detect the cause of the pain, in a disease of fang or alveolus.

In February, 1886, as a result of facing a severe cold wind while walking he had another attack of neuralgia of right side of face, worse when attempting to eat, from touch, cold water and when walking against the wind—could not bear the least cold air. Aconite 30 now gave very prompt relief and in a few days he was himself again.

A few weeks later another attack on same side of face appeared, decidedly intermittent in character, coming on promptly at 6, and gradually disappearing about 10 A.M. This was attended by great

aggravation from touch, could not wash the right side of the face, even the slightest touch of the whiskers was sufficient to bring on severe, lightning-like, lancinating, stabbing, or as he expressed it, "nipping" pains. From the early morning aggravation, the periodicity and the extreme sensitiveness to touch, I gave him Chininum sulph. 200, with gradual relief. But as the severity of the pain in the face disappeared the right deltoid muscle became affected; not only was it very painful, with entire inability to raise the arm, but nearly paralyzed the arm; could neither feed nor dress himself. Rhus, Sanguinaria, Plumbum, Ferrum and Tarantula, as the indications appeared to call for, were successively exhibited, with only partial relief. The shoulder was still very lame and painful and the face more than occasionally grumbled.

The next attack a few weeks later had the following peculiar symptoms: Pains, supra- and infra-orbital, extending to all the front teeth of right side; intermittent, stabbing, "nipping," lightning-like, and extremely sensitive to touch; relieved by heat and pressure; coming and going suddenly and attended by marked prostration and profuse night sweats. When the pains in face were most severe the shoulder was comparatively free, and *vice versa*. No thirst, appetite and thirst normal, but obstinate constipation; stool hard, small balls, difficult to expel and no inclination whatever. Here was a totally different picture, and evidently a difficult totality to cover. Magnesia phos. 200, promptly gave relief; not only the terrible neuralgic pains but the lame shoulder as well have remained entirely free to date. The doctor was relieved as well as the patient, at the happy termination of the case. It was one of the worst cases I have met for years. A slight "nipping" returned in March, 1888. He came in and asked for another dose of the same medicine, remarking "make it as strong as you can, Doctor." Dr. Tyrrell, of Toronto, had in the meantime potentized it for me so I gave him a dose of the cm., the "strongest" I had and he has had no pains since.

**CASE II.** A lady aged 26, of dark complexion, dark hair and eyes, seven months advanced in her first pregnancy, had suffered terribly for four months from neuralgia of right supra-orbital region. When she came under my observation the pains were pressing, drawing, band-like, at times extending into jaws and teeth, worse at night and confined entirely to the right side of face. A few doses of Chelidonium gave relief for three weeks, when it returned in the following manner:

Pains darting, lightning-like, intermittent, suddenly appearing and disappearing, relieved by hot clothes and pressing or lying on the affected side. Magnesia phos. 200 now gave prompt and permanent relief; and with it disappeared an obstinate and annoying constipation, which, despite several well-selected remedies, had persistently followed her during her entire gestation.

Dr. W. P. Wesselhoft in June, 1887, reported a brilliant cure of a case of neuralgia.

"An old lady of 66, thin, spare. I saw her for the first time about six years ago, the pains were excruciating and had lasted for weeks, were entirely on the right side of the face, intermittent, spasmodic,

lightning-like, and relieved by heat. Magnesia phos. gave prompt relief and effected a wonderful cure."

**Teeth.** Toothache; worse after going to bed; changes place rapidly, worse eating or drinking, especially cold things, better by heat (better by cold, Fer phos., Bry., Coff.). Teeth sensitive to touch or cold air.

Severe, pinching, stabbing neuralgic pain over root of bi-cuspid tooth, r. side; can be covered by point of finger; worse by cold washing, cold air, better by heat; could not brush the teeth with cold water for months.

Neuralgic pain in a filled tooth which had never ached before.

Complaints of teething children; *spasms during dentition without febrile symptoms* (with febrile symptoms, hot skin, hot head and rapid pulse, Bell.).

Ulceration of tooth with swelling of the glands of face, throat and neck and swelling of tongue.

Severe pains in decayed teeth or in teeth which had been filled and given no trouble for years (occurred in seven provers, three of whom "discontinued proving on account of pain in teeth and had the teeth treated by dentist").

**Tongue.** Tongue coated slightly yellow; crampy colic; clean or slight coating with pain in stomach; coated white, with diarrhoea. Tongue, a bright red; rawness in mouth.

Taste as of sour bread; slightly bitter; as of bananas, although not a whole one had been eaten at dinner the day before.

Tongue coated white all over (third day), was clean when I began proving.

Heavily coated tongue.

Sticky and coated a dirty yellow.

Left side of tongue sore; biting, burning, smarting like a canker sore; eating is painful.

**Mouth.** Bad taste in the mouth on awaking. Rawness in the mouth; feels as if cankered; warm food seems hot and burning.

Bad taste in mouth; food does not taste right; coffee tasteless; fulness in bowels; belching of gas.

Very sore; difficult to eat; sores red and raw looking on the inside of cheeks, gums, lips, tongue, not in corners of mouth; worse by touch, particles of food or liquids caused smarting and burning; lasted a week (six days after taking last powder of 1000).

Foul taste in the mouth in morning.

Feels as if scalded—as if had been smoking strong, hot cigars which had burnt the mouth.

Warm food seems unusually hot to the mouth.

Sour taste in the mouth on waking in the night.

Mouth coated with a sticky substance that rolls up in little shreds.

Mouth full of water, tasting like potato water.

Taste of Magnesia and chalk after each powder of 200 and 1000, (prover does not know what she has been taking).

Mouth sore like canker sores.

Canker sore on inside of lip, left side

**Throat.** Spasms of the glottis, with suffocative sensation.

Spasmodic constriction of throat on attempting to swallow liquids, with sensation of choking.

Throat is very red and sore, muscles of r. side of neck especially sore, must hold head to r. side without relief.

Throat very red, and just above r. tonsil (and a little back), parts seem puffy as if they contained serum; tongue light yellowish-white; severe pain in throat and neck; frequent pulse; chilly at times and aches all over; feverish, sick, tired, unable to sit up; swallowing painful, severe pain in back of head. Attack lasted four days.

Flow of mucus through the posterior nares into the throat, accompanied by sneezing and tingling in the nose and on the tongue.

Sore, no objective symptoms, but a sensation of soreness and stiffness of the whole neck (third day after em. by inhalation).

Sensation of a corn husk lodged in upper part of throat, with constant inclination to swallow (continued two weeks).

**Desires: Aversions.** Little appetite; faceache.

Appetite; unusually good, but food disagreed leaving an uncomfortable feeling all the forenoon (10 P. M., third dose).

No appetite; with pain in stomach and colic.

Great aversion to coffee.

Acids taste stronger than usual (5th day).

Appetite is improved, notwithstanding the great heat which had diminished it (5th day).

Appetite variable; could hardly wait for breakfast and yet was not disposed to eat much.

Appetite remains good, though food does not taste right: bad taste in mouth.

**Stomach.** Spasmodic sobbing (like a hiccough) for three days, ceased with the second dose in water.

Singultus thirty times in a minute; for sixty days life in danger. Magnesia phos. soon restored health.

Hiccough with retching, day and night continually for three days; ejected matter was coagulated milk, bile and mucus with great pain, so that she had to lament all the time.

Distension of stomach; very restless.

Spasmodic pains in stomach, with clean tongue.

Pinching pain in the stomach with slight gaseous eructations, very little at a time which afforded no relief.

Intermitting, shooting, cramping pains in region of stomach and epigastrium, extending sometimes toward the back or abdomen.

Flatulent distension of stomach with constrictive pain, relieved by warmth and bending double.

Eructation of food tasting of the ingesta.

Burning, tasteless, eructations come on about three hours after eating and in the evening; worse by physical exertion, better by drinking hot water. Heartburn.

Sensation of fulness after eating.

A drink of cold water starts a colicky pain in stomach, which radiates to bowels, very severe, better by doubling up, walking about,

by rest; belching seems to better the pain.

Constant nausea; was sick at stomach all day (third day).

Bilious vomiting, at times streaked with blood.

Nausea and vomiting attend headache and flatulent colic.

Gastralgia: Soreness and extreme sensitiveness of epigastrium to touch; sour eructation and sour vomiting; at 12 m., every day better by eating.

Cancer of the stomach; intolerable, burning pain; vomiting; singultus; after Arsenicum and other well selected remedies failed, patient was relieved and made comfortable for six months by Magnesia phos. (Frank Powell).

**Hypochondrium.** Sharp twinges in r. hypochondrium, on border of lower ribs.

Constrictive, aching pain around body at lower margin of ribs, as of a lameness from lifting.

**Abdomen.** Severe, gripping colic pain, at times shooting upwards towards the stomach, better by hot applications.

Abdominal pains caused great restlessness; walked about hurriedly, said he must have relief; lying on stomach gave short relief, but in a few minutes the pains compelled him to walk again.

Abdominal muscles sore with tendency to constipation (fifth day).

Colic pain; generally radiating from the navel, lessened by bending double or from pressure of hand (Col., Plumb., Pod.); often accompanied by a watery diarrhoea.

Colic pains; spasmodic, intermittent, lessened by bending double.

Colic in region of navel, has to double up. Has to scream out with cramps in abdomen.

Colic; is relieved by bending double, rubbing, external warmth and eructating.

Wind colic of small children, with drawing up the legs, with or without diarrhoea, especially if associated with acidity.

Incarcerated flatulence; unable to pass it down or up (Fischer.)

Cramps in abdomen, pains around the navel and above it toward the stomach and from thence radiating to both sides, towards the back; now violent, cutting, so that she has to scream out, then shooting and violent contracting like a spasm. She cannot bear to lie on the back stretched out, has to lie bent over (Koeck).

Much wind in the bowels, with disposition to stool but relieved by the passage of flatus (3d dose).

Colic pain in lower bowels and moving as for stool (three-quarters of an hour after 6th dose).

Pain in bowels immediately after rising, recurring at short intervals.

Swelling of right abdomen over ascending colon; on lying down a marked ridge became prominent, painful on pressure, continued nearly four weeks (fifth week; prover had severe inflammation of bowels in childhood).

Rumbling of gas in bowels, uncomfortable sensation as if a diarrhoea were coming on.

Flatulence; gas passes freely upwards and downwards.

Fulness in bowels and belching of gas.



Pain commences in bowels to right of umbilicus while walking in cold open air, better by warmth of room.

Sensation of general tightness across the bowels.

Abdominal repletion ; sensation of fulness in the abdomen.

Sharp cutting pain in right abdominal ring as if a hernia would protrude, when sitting, better by hard pressure.

Sharp burning pain, a spot about an inch in diameter.

*Bloated, full sensation in abdomen* (after second day), must loosen clothing, worse sitting, better by walking about.

*Much flatus in bowels, passing off freely on walking.*

*Constantly passing flatus when walking ;* worse after evening meal.

Sharp pains all through the bowels, with fulness, bloating and great flatulence.

Lame pain in upper and middle bowels, accompanied by a looseness, which finally relieved the pain.

*Severe attack of flatulent colic ;* with distressing vomiting, which prostrated, but better pain.

Cramps and wind colic in horses ; wind colic of cattle ; meteorism of cows.

**Stool.** Immediately after breakfast, sudden diarrhœa ; stools frequent ; at first, thick, dark brown, mushy ; then lighter, almost white and watery, finally mixed with blood.

Next day at 9 A.M., same diarrhœa returned, but in milder form ; relief of pain while at stool, followed by chilliness ; stools light-brown, then lighter and more watery.

At 5 P.M. return of pain in bowels and diarrhœa, stools brown, thick, bronze-like and pasty.

Constant sensation in rectum as if bowels would move.

Desire for stool after drinking sweetened Coffee.

Stools loose, watery, with urging and pain in stomach.

Dysentery : with cramp-like pains, relieved by pressure or bending double ; with spasmodic retention of urine ; cutting, darting, lightning-like pains in hæmorrhoids.

Pains so severe as to cause fainting ; pain *very severe* in abdomen and rectum, especially the latter ; pain like a prolonged spasm of abdominal muscles.

Constipation of infants, with spasmodic pain at every attempt at stool, indicated by a sharp, shrill cry ; accumulation of gas in alimentary canal and much rumbling and flatulent colic.

Afternoon stool, very tedious, but profuse, with some pain in the rectum.

Itching and scratchy feeling in the anus (9th day).

*Tedious stool*, hard at first, soft afterwards followed by burning in the anus (9th day).

At 7 A.M., *profuse*, like yellow clay mixed with water (enough for three ordinary movements), followed an hour later by one neither so large nor so loose, which better the pain in bowels.

**Urine.** Spasm of the bladder ; spasmodic urinary complaints ; spasmodic retention ; spasm of neck of bladder ; spasmodic tenesmus vesicæ, with constant and painful urging.

Nocturnal enuresis from nervous<sup>1</sup> irritation ; spasmodic retention.

When urinating, violent, shooting, burning pains ; mucous discharge from the urethra.

Vesical neuralgia after use of catheter, sensation as if no muscular contraction.

A bright shiny discharge from the urethra for three years, in an old man.

Deficiency or excess of phosphates.

Gravel.

Restless sleep, from urging to urinate ; the discharge scanty.

Cutting pain in the bladder before urinating (7th day).

**Male.** Almost constant sexual desire since beginning the proving with no bad effects from indulgence (which is unusual with me.)

**Female Sexual Organs.** Menstrual colic ; ever since I began taking the medicine I have menstruated from six to nine days too soon—the usual period being twenty-eight days from time it ceases until it begins again. The second was accompanied with great weakness and an intensely sore, bruised feeling all through abdomen, so that I could hardly be up at all, but was much worse lying down. This continued for two days (At this time I had not taken any of the medicine for a month).

Painful swelling of the external genitalia began the second week of proving and continued with varying degrees of intensity for six weeks ; labiæ swollen and at times intensely painful.

Menstrual colic ; pain precedes the flow.

Menses a week early, with a dark, fibrous, stringy flow.

Dysmenorrhœa ; pains severe, intermittent, worse on right side, great relief from heat. (I have twice confirmed these symptoms, in patients who had always been in the habit of receiving monthly relief from morphine. Taft).

Menses : pain better by flow (Lach.—always feels best during menstrual flow, Zinc.)

The menstrual pains are cutting, drawing, pressing, cramping, intermittent, resembling the menstrual and labor pains of Pulsatilla, but unlike Pulsatilla, are better by heat.

Membranous dysmenorrhœa : At each menstrual crisis severe, sharp shooting pains in lower abdomen after the flow began, followed by discharge of a membrane from one to two inches long. Mag. p. in the 6th potency better the pains and after a relapse brought on by getting the feet wet the 6th. cured the case.—Dr. Kimball.

Has cured many cases of membranous dysmenorrhœa ; in fact some physicians prescribe it empirically for all forms of painful menstruation.

Cough dry, spasmodic, violent ; constant, unable to speak from the cough ; face crimson from violence of cough ; uncontrollable, seemed she would choke ; retching choking, worse in a warm room, better in the open air. From a repetition of a high potency given for neuralgia.—Kent.

Dr. A. P. Davis, Dallas, Texas, thus compares *Magnesia phos.* and *Actea racemosa* according to his clinical experience :

"There seems to be a similarity between the characteristic indications for the use of *Cimicifuga* and *Magnesia phos.*

"In *Cimicifuga* there is more of a *steady pain* and in *Magnesia phos.* a *shooting, spasmodic, darting 'like lightning pain,'* which comes and goes *suddenly*, yet at the same time *not an entire cessation of the pain.*

"The pain of *Magnesia phos.* seems to be in the ovaries and not in the "broad ligaments," nor so much in the cervix as in the fundus of the uterus, and seems to be more in the deeper structure, the muscular than the ligamentous, as in the case with *Cimicifuga.*

"The action of *Magnesia phos.* is quicker than *Cimicifuga.* The experience I have had with *Magnesia phos.* is that the pains that come on several hours before the menses, are controlled better and sooner by the use of *Magnesia phos.* than any other remedy. They affect principally the lower abdominal region and have a peculiarly indescribable character newly all the time, and frequent shocking, darting paroxysms until the flow starts, then they cease. I subjoin a few clinical cases giving a general idea of the uses of the *Magnesia phos.* that may be valuable to those unacquainted with, or unused to this remedy.

Case I. Miss S., æt. 22. brunette, short, plump, round body, large, active brain, intellectual; was since puberty troubled every month with dysmenorrhœa, beginning several hours previous, and during the first day of flow, with severe pains in the uterus, back and lower limbs, and these so severe that they seemed unbearable and hysteria seemed threatening. In one of these attacks I was sent for. Found the patient in bed; the feet had been bathed in hot water and hot cloths applied for hours to the lower abdomen; pains no better. I immediately gave her a large dose of *Magnesia phos.* 6x. In less than half an hour the pains lessened; I repeated the dose, in a few moments the patient was easy, the flow began, and went on the usual time.

Next month I advised patient to begin the day before period and take three doses, and on the day period was to come on, take a dose every two hours. No pains this month. This process was repeated the third month: no more trouble and patient is now well and no return of pain for over three years.

"The effect of *Magnesia phos.* in relieving menstrual pains are decidedly satisfactory—I regard it as superior to *Cimicifuga*, even in neuralgia of the uterus. Ovaritis seems to be controlled by it from its effect, not only in relief of the pain, but curatively from its mechanical action on the walls of the blood vessels—contracting them, and thus relieving the congestion. What particular nerve influence it has, I am not able to comprehend, therefore to explain; but know that it must affect all those nerve centers from which the nerves are derived which control the sensation and nutrition of the female generative organs.

"It affects materially, uterine engorgement resulting in induration.

"CASE II. Married lady, having one child, had every month menorrhagia; twice the flow was so excessive as to cause fears of death.

Upon examination found the uterus low down, swollen, the whole vagina filled with indurated uterus; tender, red orifice (os uteri) stretched open about half an inch, inside filled up, outside congested. I began treatment with Magnesia phos. 6x., three to four doses a day. No hæmorrhage next month. No pain, and in three months the organ was reduced to its normal size and dismissed patient cured.

**Chest.** Darting pains in chest, more on right side, which radiate from pain in bowels.

Oppression of chest; desire to take a deep inspiration.

Oppression on first entering a warm room better after being in a short time.

Sharp pains in chest worse on r. side.

Dull pains through the chest which radiated from the bowels.

Difficult to take a deep breath on account of muscular lameness.

Shortness of breath increased by walking and by being in a warm room.

Repeated desire to take a long breath; as from a sense of suffocation.

A violent, dry cough came on after the headache left; not excited by anything in particular.

**Dysmenorrhœa:** At each menstrual period a membrane, varying in size from one to two inches in length, was discharged. Her symptoms were, after the flow began, severe, sharp, shooting pains low down in the abdomen, better by lying curled up in bed with a hot water bag on the abdomen. When the severe pains were better a dull aching for a day or two followed, and the next or the following day a membrane passed. With this exception was in very good health. After one of her periods I gave her Mag. phos. cm. in water, a dose night and morning, for two days.

The next menstrual period was nearly free from pain and the succeeding ones were painless, but the usual membrane was passed. Before this she had always stayed in bed without any relief. Painless menstruation went on for six or eight months, when she got her feet wet just before her menses, and received Mag. phos. dm. It relieved her and she has had no trouble since. (S. A. Kimball).

**Neck and Back.** Sore pain in head, back of neck and lower part of back. A sore ache in lower part of back; sensation as if a section of vertebra were missing.

Soreness and lameness in lower part of back.

Aching pain in neck and back.

Hard aching in small of back.

Dorsal spine, for about six inches, very painful and sensitive to touch for weeks (after repeated doses of 50m. for neuralgia—Kent).

**Upper Limbs.** Rheumatic pain in the left forearm from the elbow to the hand; most severe from the wrist to the knuckles. Darting pain in arms. The skin of the fingers feeling as if stretched too tightly; followed by pain in the elbow joint and then in the wrist (after 2d dose).

Throbbing pain in the right wrist in the vicinity of the ulna (3d dose).

Right shoulder joint lame.

Rheumatic pains in right arm and shoulder; began in the shoulder and crept down the arm; a steady ache, better by heat, worse by motion.

*On retiring a steady aching pain in r. arm from shoulder to elbow, disturbing sleep, lasting all night, and gradually disappearing in the morning after moving about (constant every night for three weeks.)*

A dull, heavy, aching pain began at the shoulder and extended to the wrist worse by cold, motion and pressure.

The first joint of middle, third and little fingers of left hand, became enlarged, though painless.

Tingling in the fingers of the left hand (after 5th dose).

Stinging pain in the first joint of the left thumb, extending to the nail, like that of a panaritium.

The first joints of fingers of both hands are still swollen, though painless. That of the little finger, left hand, is as large as two kernels of corn in the milky stage, and transparent like the corn. The other first joints on fingers of both hands look as large but do not project so sharply, nor are they transparent.

**Lower Limbs.** Every night neuralgia, now in the lower limbs, in tibia or in thighs, now on the left, now on the right side, mostly with spasmodic muscular contractions; during the day perfectly well.

Joint of r. hip lame, worse on walking.

Sharp pain in l. knee, followed by numbness of joint.

Tingling in toes of left foot (5th dose).

A slight bruise below the knee becomes very painful about ten hours after, as if rheumatism had set in.

Legs ached after getting into bed.

Sensation in limbs like a shock of electricity followed by a soreness of the muscles.

Aching feeling in arms and legs; weak and trembling.

Rheumatic drawing in the muscles between the right tibia and fibula, extending from near the knee to the ankle; painful on pressure (4th day).

**Nerves.** Chorea; epilepsy; tetanus.

Convulsions: with pertussis.

Spasms: without fever; of teething children.

Crampy contraction of fingers; staring, open eyes, fifteen to thirty minutes duration.

Every twenty three days spasms, fifteen to thirty minutes duration.

**Sleep.** Drowsiness; fall asleep and awake as from an electric shock, and then become drowsy again.

When it was time to rise (6-30 A. M.), felt very dull, unrefreshed and drowsy (4th day).

Awaken dull and unrefreshed, with uneasiness and bloated feeling in the bowels (5th day).

Sleep disturbed by troublesome dreams, awake with an impression of some one being in the room—saw some one standing over me.

Restless sleep from pain in occiput and back of neck.

Awoke at 3 A.M. and remained awake about an hour.

Sleep poorly; dreams a great deal.

Very drowsy; sleepy when attempting to study.

Spasmodic yawning, severe, as though it would dislocate the jaw; caused tears to flow.

**Chill. Fever. Sweat.** Chilly after dinner in evening, at 7 P.M.; chills run up and down the back with shivering, desired more clothing.

Chills every evening at 7 o'clock, after dinner; legs ache; must be covered.

Chilliness in evening when going from a warm room into open air; shaking and chattering of teeth as with an ague chill, better by entering a warm room.

One of my provers discontinued the drug "owing to a crop of boils that took possession of him, which terminated in a five week's attack of remittent fever."

Chilliness with chattering of the teeth worse by motion and cold air; so violent was compelled to take her bed for half a day.

Slight chill between 7 and 8 P.M., felt as though cold water had been poured down the back followed by a succession of little shivers (13th day after taking last dose of 200).

Chill at 11 A.M. began in back of neck and gradually crept down the back and over whole body, followed by very vivid flush on left cheek and left ear for 30 minutes, no thirst (14th day).

Severe chill of 9 A.M., which lasted three hours; was compelled to go to bed where I lay and shook; neither heat nor sweat followed (21st day).

Creeping chills up and down the spine, followed by a suffocating sensation; must throw off all covering; distinct from chill and comes in spasmodic attacks and lasts about half an hour, no thirst.

Sensation of being worn out and completely exhausted, made me go to bed. Chill lasted one hour at end of which exhausted feeling passed off. Cough and catarrhal symptoms followed chill, no fever.

Bilious fever—diagnosed a genuine attack—cold, chilly and aching all over, sat near a hot fire, face flushed, high fever, rapid pulse. The fever increased in intensity through the night and next day; bilious vomiting, at times streaked with blood; intense headache and some delirium at night; no appetite and much thirst (5th day).

Burning, stinging pain in a bunion on left foot which had given no trouble for years; painful for fifteen days when it gradually ceased.

Feet so tender and corn so painful was unable to wear her ordinary shoes.

Burning, stinging, smarting lancinating pain in corns.

**Skin.** Barber's itch; herpetic eruption, with white scales.

**General.** Tires very easily, even from talking, which is unusual.

Feels sick and prostrated on waking in the night.

A tired, languid feeling which seemed to take away my strength.

Shooting pains all over the body.

Tingling sensation in all parts of the body, more noticeable in the extremities, like an electric shock.

Languid as in hot weather; required an effort to walk.

**Antidotes.** *Bell., Gels., Lach.* (for the cough).

The following, from Drs. Boericke and Dewey's *Twelve Tissue Remedies of Dr. Schüssler*, on the Chemical Properties, Physiologico-chemical Data, General Action, and Relationship of the drug, are given as a suitable supplement to the above :

**Chemical Properties.**—Formula,  $Mg\ HPO_4\ 7HO$ . It is made by mixing phosphate of soda with sulphate of magnesia. The crystals resulting are six-sided, needlelike. They have a cooling, sweetish taste. They are sparingly soluble in water ; 322 parts dissolving one part after standing a long time. Boiling decomposes it. It exists in the grains of cereals, and can be detected in considerable quantity in beer.

**Physiologico-chemical Data.**—Is an earthy constituent of muscle, nerves, bone, brain, teeth and blood corpuscles. A disturbance of its molecular motion causes cramps, pains and paralysis. Schüssler says that the action of *Magnes. phos.* is the reverse of that of iron. By functional disturbance of the molecules of the latter the molecular fibres relax ; through the functional disturbances of the magnesium molecules they contract ; hence it is the remedy of cramps, convulsions and other nervous phenomena.

**General Action.**—Diseases having their seat in the nerve-fibre cells or in the terminal bulbs of the nerves, in the muscles or in the muscular tissue itself, are cured by this remedy. Pains which are darting, spasmodic in character, burning, lightning-like, accompanied by a constrictive feeling. They are often changing in locality, and are RELIEVED BY WARMTH AND PRESSURE. It is purely ANTISPASMODIC, and hence is curative in cramps, spasms of the glottis, tetanus, epilepsy, spasmodic retention of the urine, paralysis agitans, etc. It is BEST adapted to lean, thin, emaciated persons of a highly nervous organization, and prefers light complexion and the right side of the body. Cold in general favors its action exceedingly, whereas heat and pressure interfere with it. Hence the patient is relieved by these. Attacks are often attended with great prostration and sometimes with profuse sweat. The *Magnes. phos.* patient is languid, tired, exhausted, unable to sit up, whether he is suffering from acute or chronic affections.

**Relationship.**—*Magnes. phos.* has won its greatest laurels in the treatment of nervous affections, neuralgias especially. Here, in a general way, it finds another tissue remedy with which it shares the honors. This is *Kali phos.*, which is more truly the NUTRITIVE brain remedy, and clinically corresponds more to parietic affections, while *Magnes. phos.* does more to spasmodic affections. The general modality differs, too, *Kali phos.* having amelioration by cold applications. In studying the action of this drug, we find the most striking resemblance in the colic and other neuralgic symptoms with *Colocynth* ; and it certainly is a suggestive and interesting fact that *Colocynth.* contains 3 per cent. of *Magnes. phos.* The flatulent colic reminds also of *Dioscorea*. Another near relative is *Gelesem*. The provings of both show a close correspondence in the mixture of spasmodic and parietic symptoms, hence their successful employment in hysteria,

hypocondriasis and spinal irritation. The chills up and down the back are common to both. Naturally enough come into this physiological group *Ignat.* and *Nux mosch.*, which compare especially in the flatulent symptoms of both and the spasmodic of *Ignat.* In spasms *Magnes. phos.* is like *Bellad.*, and follows it frequently, should it fail and the patient present the dilated pupils, staring eyes and starting at slightest noise. In strabismus, if caused by worms, compare *Natrum phos.*; in watery secretions, diarrhoea, etc., *Natrum mur.*; in epilepsy, *Kali mur.*, *Calc. phos.* and *Silicea*; affections of the right side of the body, *Bellad.*, *Bryon.*, *Chelid.*, *Kali carb.*, *Lycop.*, *Podoph.* The violent pains remind of *Bellad.*, *Stramon.*; the shifting, rapidly changing of *Puls.*, *Kali sulph.*, *Lac can.*; the squeezing, constricting sensation of *Cactus*, *Calc.*, *Iod.* and *Sulph.* The menstrual and labor-pains resemble *Viburn.* also *Pulsat.*, but, unlike this, are better by heat. *Cimicif.* has much similarity here, but its pains are more steady, those of *Magnes. phos.* more spasmodic. Again, the pains of *Magnes. phos.* seem to be more in the deeper structures—ovaries, fundus—those of *Cimicif.* more in the ligamentous. (A. P. Davis.) In membranous dysmenorrhœa remember *Borax* and *Acetic acid* and *Viburn. op.* Among plants containing *Magnes. phos.* may be mentioned *Lobelia*, *Spmphytum*, *Stramon.* and *Viburn.*, which probably explains the presence of similar symptoms. In the nightly neuralgic pains relieved by heat compare also *Ars.*; and in its action on the nervous system generally compare *Zinc.*

## EDITOR'S NOTES.

### The Venoms of the Toad and Salamander.

It has long been known that both the toad and salamander are of a venomous nature. Shakespeare, as everyone knows, refers to the toad as source of ingredient in the mystical mixing of a charm-producing preparation, and in one instance to a toad which had "sweltered venom sleeping got." Pliny also says of the salamander that "of all venomous beasts there is none so hurtful and dangerous." In a very interesting paper on this subject in the July issue of *Science Progress* Dr. Hewlett shows that the employment of preparations of the toad as remedies for dropsy is not so absurd as may at first appear, for, as he has shown, a substance is secreted by the skin very like digitalin, and hence possibly having a favourable effect in cases of cardiac dropsy. It would appear that the active principles of the venoms of the toad and the salamander are totally different substances from those of snake venom, the former being alkaloidal, while the latter are proteid in nature. Curiously enough, the venom of the toad and salamander is fatal to the animal which secretes it, only in comparatively large amounts. The salamander appears to be remarkably refractory to certain poisons; it is only completely "curarised" by forty-three milligrammes of curare, while morphine is apparently quite inactive. It was demonstrated by actual experiment that the salamander's blood and blood serum act as an antitoxin towards curare. The paper is a very interesting one, not only as



tending to throw light upon the action of poison, but in also showing that the belief of the ancients in the venomous nature of the toad and salamander was not altogether devoid of foundation.—*Lancet*, July 31, 1897.

### **Deep Tissue Traumatism from Roentgen-Ray Exposure.**

Dr. David Walsh, Physician Western Skin Hospital, London, has cited the following cases which demonstrate that the Roentgen rays exert an injurious influence upon the deeper tissues of the organism, and must not therefore, be lightly used:

The only recorded instance, so far as the writer knows of apparent injury to deep structures by the Roentgen methods is one given by an American surgeon, Mr. Gilchrist. It was that of a demonstrator, aged 32 years, affected by a severe dermatitis after frequent and prolonged exposures. At the same time the bones of the hand became tender on pressure. A skiagraph showed the presence of a distinct osteoplastic periostitis, and probably an osteitis of the first and second phalanges of the index and second fingers, and also of the heads of the corresponding metacarpal bones.

A remarkable instance of apparent injury to brain structures by the rays of the focus tube has come under the notice of the present writer. The sufferer, a man 49 years of age, had demonstrated the rays for some months, and had suffered from several slight attacks of dermatitis. At length he experienced a severe illness after a week's prolonged demonstration, during which the tube was constantly near his head, although separated by a wooden screen. The main features of his attack were giddiness, slight headache, vomiting, diarrhoea, high temperature, and prostration. He was under the care of Dr. Murray, of Clacton-upon-Sea, who has kindly furnished the following note. When the patient came under observation his temperature was 103·5°, pupils sluggish, frequent diarrhoea and vomiting, great languour and debility. Dr. Murray regarded the attack as in some way due to Roentgen ray exposure, and compared it at the time with the symptoms of "sunstroke." The giddiness persisted for a couple of months. On the whole the facts of this illness appear to be consistent with a theory of gastric and cerebral irritation set up by focus tube exposure in a subject proved to be susceptible by previous dermatitis from a similar cause.

Another case has come under the writer's notice. A practical worker, Mr. Greenhill, was carrying out a series of experiments involving exposure of the region of the stomach for a period of about two hours daily. After some weeks he complained of gastric symptoms, such as pain, tenderness on pressure, flatulency, colic, and diarrhoea. He went away into the country for a fortnight and got well. On his return he resumed his experiments, and after a fortnight experienced a similar attack. He subsequently shielded his stomach with a thin sheet of lead, and his symptoms finally disappeared. This history certainly suggests that in his case the rays of the focus tube caused direct inflammation of the gastro-intestinal mucous membranes.

Other facts pointing to deep action of the focus tube rays are the local tremors often set up by exposure, and the apparent shrinking of the heart noticed in several instances by Dr. Bezly Throne. Lastly, there is the action, noted by Despeigne and others, of these rays in the relief of the pain of cancer.—*Brit. Med. Jour.* July. 31, 1897.

### The Structure of Bacteria.

The actual intimate structure of micro-organisms is a subject which has as yet received but little attention from English bacteriologists. It is not revealed by the methods of staining, or indeed the amount of magnification which suffice for diagnostic purposes, and its study has the double disadvantage of requiring special skill and leading to no obvious and immediate results of practical clinical importance. Nevertheless much time has been devoted to it by Continental observers, and M. Duclaux in an excellent summary of our present state of knowledge in a recent number of the *Annales de l'Institut Pasteur* refers to a formidable list of forty memoirs bearing upon it.

The opinions expressed show a good many discrepancies, mainly rising from a common cause. Differences of structure in normal bacilli are very hard to detect, for the whole protoplasm appears homogeneous; it is therefore necessary to study them either when they have become old and are commencing to disintegrate or with the aid of colouring reagents. The question then arises as to how far the appearances then presented may be taken as indications of the normal structure. The plasma of the bacteria is a gelatinous substance readily coagulating with the aid of heat or reagents. This has been shown by Butschli, who has actually succeeded in squeezing out the gelatinous material from its envelope. The ease with which the jelly coagulates under different circumstances is one of the main sources of difficulty in its differentiation. One set of observers, among whom A. Fischer and Migula are conspicuous, regards a bacillus as consisting of a capsular membrane containing a mass of protoplasm with a central vacuole but no nucleus. The vacuole however depends too much upon the viscosity of the protoplasm and therefore upon external conditions to have, in Duclaux's opinion, the importance assigned to it by them. Migula in fact considers that the division of a bacterium is preceded by binary fission of the vacuole. Butschli on the other hand has studied bacteria and larger, but almost as lowly, fungi, the cyanophytes, by faintly colouring them with acid hæmatoxylin. He distinguishes a bacterium into three parts, a membrane which does not take stain at all, a faintly staining peripheral zone, and the much discussed deeply staining central body.

Butschli considers this central body to be, if not a nucleus, at least allied to one in its nature: he has twice, in the case of *Beggiatoa*, been enabled to detect karyokinesis in it. No difficulty is found in accepting this view as regards the cyanophytes, in which although large, the central body does not entirely preponderate; but in the smaller bacteria it is found to occupy the whole membrane, the protoplasm being reduced to a mere semilunar thread at each end. This

assumption that a bacterium consists practically entirely of a nucleus, with the nutritive protoplasm reduced to a minimum, has not been generally accepted by bacteriologists. Metchnikoff has well compared it to the condition in embryonic cells and in myeloplaxes—that is, where nutritive activity is greatest. Duclaux suggests that protoplasm is, so to speak, the kitchen for the nucleus, which, when in a very active state, can take in its food raw. It will possibly be found that when storage of starch, etc., takes place in a bacterium, protoplasm may be developed around the nucleus, as a “tissue of reserve.”

Another most interesting question is as to the histology of spore formation. Babes was the first to demonstrate in a number of bacteria, and particularly in that of diphtheria, minute particles taking a violet or reddish stain with methylene blue, and so standing out in sharp contrast to the blue ground. They were most numerous at the centre and extremities of the rod, as if associated with division and growth; he gave them the non-committal name of “metachromatic granules.” Butschli has described them as mainly occurring in the thin protoplasmic layer already mentioned. Certain of them appear to take part in formation of spores, and here again, difference of opinion has arisen. Ernst described “sporogenic granule” staining with hot, but not boiling, methylene blue, as appearing in certain bacilli under conditions favourable to spore formation, and running together in places to give rise to spores. But Bunge pointed out that these granules were present in some bacilli which did not form spores, and absent in typical spore-bearing forms such as the anthrax bacillus; and, further, that unlike spores they did not resist boiling water. He himself describes granules staining less easily than those of Ernst, which appears to fulfil these conditions; they require treatment with an oxidising agent before they are capable of taking the ordinary stains. In the anthrax bacillus three or four rounded granules can be seen, which eventually fuse into an oval spore. These granules withstand the action of boiling water, and in this respect, and the difficulty with which they are stained agree throughout with the spores themselves. This would seem to show that the difficulty of staining the latter is due to a quality of the material of which they are composed, and not to their being developed in an impermeable membrane.

One final point remains for solution: to bring the conclusions of Butschli and of Bunge into harmony it must be shown, as Duclaux points out, that the granules of the latter are formed of the “central body” of the former. This is an important thesis for future observation.—*Brit. Med. Jour.*, August 14, 1897.

## CLINICAL RECORD.

## Indian.

*A Case of Malarious Fever with enlarged Liver and Spleen.*

Reported by BABU JOYKISSEN GHOSAL.

N , a male child residing in the Northern Division of the Town, aged about a year and half, came under my treatment on the 16th July 1896, for enlargement of the spleen and liver. The child was suffering for the last 3 months. Besides a continued state of feverishness the child used to suffer from cold every now and then. He was all along under the treatment of a lay homœopathic practitioner, a next door neighbour. On taking the history of the case I found that the attending physician had tried a host of remedies without any benefit whatever. He named in succession *Bryonia*, *Nux Vomica*, *Calc. Carb.*, *Calc. Ars.*, *Merc. Sol.*, *Merc. Iod.*, *Ars. Iod.*, *Chin Ars.*, and *Sulph.*, each in varying dilution. Some of these remedies, he said, were given in consultation with a well-known homœopathic practitioner. The case appeared to me to be one of overdrugging. At the time of examining the patient, who was then suffering from running from the nose and eyes, I noticed some red spots on the arm and back of the child which led me to suspect measles. But the parents said that these could be no other than mosquito bites since they are oftentimes seen on the child's body. The redness of the child's face, tongue, and throat, however, confirmed my diagnosis. This also afforded me a good opportunity for stopping all medicine till the appearance of the rash. The measles actually appeared all over the body but fortunately passed off in a week without any distressing sequelæ. When after the favorable termination of the measles the attending physician pressed me to select a suitable remedy for the child's old complaint, viz., enlargement of spleen and liver, I was at a loss what to suggest finding he had wellnigh exhausted all hepatic medicines. Just at this time the father of the child became very much anxious, and distinctly gave us to understand that he would stick to homœopathy only for a few days more, and that if I liked, I might once consult the best homœopathic physician of the city. I then told him to bring in Dr. Sircar to which he readily agreed.

25th July 1898. Went to see the patient in company with Dr. Sircar who, after hearing the whole history of the patient, said that the case was rather a simple one but complicated with overdrugging, for he said that there is such a thing as over drugging even with homœopathic medicines. The best line of treatment that he could

suggest was the total abstinence<sup>o</sup> from further medication for a fortnight in order to allow the effects of medicinal aggravation to pass off. To satisfy the parents the patient was given unmedicated globules for a fortnight, and strange to say the child's appetite increased and his features showed distinct signs of improved health. The father of the child now gave up his idea of change of treatment, and of his own accord called in Dr. Sircar a second time to have him again thoroughly examined. Dr. Sircar was very glad to notice the diminution in size of both the spleen and liver and the general improvement of the child in every respect. He still asked me to keep the patient for a fortnight more on unmedicated globules and await the result. During this time the child had a slight cold and cough and I was tempted more than once to give him *Ipec.* 6 x. But as Dr. Sircar was not inclined to give any medicine till the symptoms really demanded it. I had to hesitate between his inclination and mine. I thought it safe to abide by his advice, and I had not to repent. The cold gradually passed away and the little patient steadily improved without any medication whatever.

[Remarks.

This is not the only case in which the discontinuance of drugging has been followed by recovery even from very serious diseases. The fatal facility with which homœopathic medicines are selected for any and every symptom, the frequency in which they are administered, the thoughtlessness with which they are as frequently changed, are evils of homœopathic practice which cannot be too strongly deprecated. Such practice is as bad as, if not worse than, the old school practice. We are fully persuaded that if cases of malarious fever were left alone without any treatment, we should hear less frequently of fatal cases of infantile liver and jaundice. We go so far as to say that it is better far to leave cases of even cholera alone than spoil them by injudicious drugging, which we have often seen done. Abuse of calcaria, of arsenic,<sup>3</sup> &c., by practitioners of our school works no less mischief than abuse of quinine, of purgatives &c., by practitioners of the old does.—EDITOR, *Cal. J. Med.*]

## Foreign.

### *Cases of Proctalgia.*

By DR. CONRAD WESSELHOEFT, M.D.

CASE I. 1888, May 18, Miss , æt. forty-five, had for several weeks severe rectal neuralgia, supposed to be caused by piles. These were entirely absent, but there was intense rectal pain after each defecation, lasting for several hours. Examination disclosed a firmly contracted and highly sensitive sphincter, rendering the examination extremely painful. In this case the feces were not dry and hard, but they were retained on account of the fear of the pain caused by their expulsion. The pain in this case was described as burning, pricking, involving the whole perineum and vaginal portion.

In this case strychnia sulph. gradually relieved the pain; but this was greatly assisted by atropia sulph., one tablet of the 2 x trit. in one half tumbler of water, a teaspoonful every hour during the pain. Warm-water injections, not having been abused in this case, were also recommended here, so that by June 9 the patient reported great improvement and much encouragement from relief obtained. Daily stools were now the rule, and the subsequent pain quite endurable; still the last did not subside until June 19.

CASE II. 1891, June 18, Mr. has well-marked rectal neuralgia, caused by the periodical abuse of injections, cathartics, and suppositories, for what was supposed to be piles, causing constipation; but these were not present at all, the case being one of proctalgia. The pain begins twenty minutes after stool and lasts all day. This condition he has suffered from at intervals, the present attack having lasted three weeks after a period of comfort. The chief cause in this instance was obviously too much fresh bread and meat diet, all of which was changed, and cathartics and injections omitted.

The chief indications in this case were: painful contraction of the sphincter and ineffectual straining at stool; painful pressure in rectum before and after stool. These symptoms indicating nux vom., this was given in the form of strychnia sulph. 3 x, one tablet every four hours during the day. In twelve days from this time the case had not perceptibly improved, so the medicine was changed to the 2 x trit., one tablet only every night and morning, with croton 3 x, ten drops in one half tumbler of water, one teaspoonful every two hours during the day.

On July 3 the patient reported that after taking the medicine as directed he had frequent urination and stools; then all became normal,

and he had no more pain. This was not very good prescribing, but the case is reported chiefly on account of its pathological interest, and possibly the effect of croton, as strychnia had done no good before.

CASE III. 1892, January 27, Miss \_\_\_\_\_, æt. thirty, presented a typical case of neuralgia of the rectum. The patient was a teacher, much confined to the house; she was of very healthy appearance, without the slightest neurotic taint, and generally well. For some months she has had attacks of severe rectal pain after defecation, which she attributes to hemorrhoids; the pain lasted for half a day more or less, and was so severe as to disable the patient from fulfilling her duties. Of late the attacks came after every defecation, which, however, does not occur every day, owing to the patient's reluctance to yield to the desire to evacuate the bowels, although the feces are neither dry nor hard; so the patient refrains from stool as long as possible in order to avoid the pain.

These symptoms were attributed to piles. These might or might not be associated with the proctalgia; therefore a rectal examination was made. This failed to reveal even a vestige of enlarged hemorrhoidal veins or thickening of the lower portion of the rectum, while the portion above the sphincter was entirely smooth, of normal calibre and unencroached upon by any hemorrhoidal tumors, but very sensitive to the touch. It was a case of rectal neuralgia without complications; and while the appetite and digestion were in good order, the constipation was due to reluctance of obeying the natural inclination to go to stool, and also to the inability to expel the feces on account of the pain in the rectum.

The treatment and directions were to avoid active duties, to live on soups and light food, an orange every day, a glass of water on rising, avoidance of coffee and tea, etc. As medicines *nux vom.* and then *belladonna* were given, in this case without benefit. On January 29 croton 3x was given, three drops to be taken in a tablespoonful of water every three hours. On the thirtieth there was no pain; but this was present again on February 1, after stool, and the medicine was continued. In ten days the patient came to report that she began to improve soon after beginning with the medicine, that she had stools daily, and less pain after them, so that on February 10 she reported herself quite well. She has since, and up to a late date, repeated the assurance that she has continued quite well.

CASE IV. 1892, November 14, Mrs. \_\_\_\_\_, æt. fifty-eight; this was a case of retained feces owing to proctalgie pain. The patient

was a small spare woman, living in a boarding house, and had been suffering for about three weeks with proctalgia, which had now reached a point beyond endurance. Owing to this, she avoided defecation as much as possible; what the patient attributed to piles and costiveness was chiefly due to very irregular meals, indolence, and absence of exercise.

Remembering at once the former favorable experience with croton, and in full reliance on this remedy, no rectal examination was made at the time; but neither croton, atropia, nux vom. nor mercurius cor. alleviated the now almost constant tenesmus and aching pain in the rectum. I was deceived by the occurrence of an occasional small fecal evacuation of normal appearance, but this was always followed by severe proctalgia of a burning, cramplike character. Thinking it probable that a fecal accumulation might have taken place, notwithstanding occasional stools and scanty liquid food, a rectal examination disclosed a large fecal mass in lumps and nodules filling the rectum, and filling it high up to the sigmoid flexure. Etherization was required to empty the rectum, and in this way an unusually large quantity of fecal matter was removed manually.

This mass was perfectly normal in appearance, not dry or hard, but the result of accumulation for weeks, owing to the fear of the intense pain during and after defecation, which function the patient had learned to repress. In this case, as well as in the previous ones, there were no hemorrhoids or other abnormal conditions of the rectum, except the neuritis with its resulting pain. This was at once entirely relieved; a certain amount of soreness following the distention by fecal matter and its manual extraction yielded to arnica 3x. For four days there was no stool, but at the end of that time the normal tone of the bowel having returned, there were three normal stools, indicating that the whole accumulation had not been removed; but from one to two perfectly normal and perfectly painless stools relieved that without the aid of any other medicine.

Much has been said of late of the value of distention or stretching of the sphincter. In this case no effort was made in this respect, and the amount of dilatation during the removal of the fecal mass was no greater than during a natural stool, and at no time greater than to admit the index and middle fingers.

CASE V. 1894, October 9, Miss , aet. thirty, whose occupation was that of a teacher, requiring many hours of standing without rest, about this time communicated by letter symptoms of indigestion, gnawing pains in the bowels, tiredness, and other varying sensations,



indicating nervous exhaustion, approaching a neurasthenic condition, accompanied by constipation, supposed to be caused by piles. These had been fruitlessly combated by daily glycerine and other suppositories.

This condition culminated about December 8 in severe proctalgia, characterized by agonizing rectal pain and soreness after these forced stools, which are now delayed till every other day, the intervening day being one of comparative comfort, during which the patient dreads the next day with its hours of misery. Nux vom. and croton were sent by mail with the request to call for an examination. This was made on December 29 with a perfectly negative result as far as piles or any rectal abnormal condition were concerned, with the exception of very acute hyperæsthesia of the sphincter and of the portion just beyond. The bowel was capacious and smooth and perfectly normal higher up. Croton 3 x dil., ten drops in one half of a glass of water, were continued, and later on strychnia sulph. 3 x, one tablet every night and morning.

This was continued with intervals of placebo until January 9, when the report by letter was that there had been a perceptible lessening of the pain after stools which as yet cannot be expelled for fear of pain and aching of the sphincter. This condition is relieved by enemata of but a few gills of warm water whenever there is a desire to evacuate the bowel; nevertheless the subsequent pain still lasted for eight or nine hours, but in much more endurable form than ten days ago. Sulphur, and later pulsatilla have no effect; but atropia sulph. 2 x, one tablet, dissolved in one half tumblerful of water, a teaspoonful at a dose every two hours, was followed by decided relief till January 17, when the report was, "I am still improving."

At this point the menstrual period interrupted progress (January 22) and demanded strychnia 3 x twice a day, after which improvement progressed again, so that on February 4 there was no more proctalgia after stools, although sluggish and irregular stools still persisted. A return of rectal pain on February 20 again subsided after atropia 3 x.

In this case croton and strychnia were followed by improvement, but atropia 2 x, and later 3 x were followed by complete relief. But in order to secure these results the patient was persuaded to give up work and rest at home for two weeks during the last part of the treatment. During this period the diet was also much improved upon, as well as the regularity of meals, neither of which could be accomplished while the patient was boarding and teaching. It is

expecting too much of medicine to produce cures without strict regimen, the enforcement of which is sometimes impossible, and always very difficult, unless the patient is near at hand, very patient and obedient. The necessary factors, intelligence, obedience, and ability to carry out the doctor's directions, are unfortunately not often found associated in one case.

The following is a case in point :—

CASE VI. 1895, February 6, Mrs. , æt. sixty, was not of the kind depicted in the preceding case, but of a querulous disposition, not at all improved by running from doctor to doctor for the last ten years, to be cured of constipation. This had resulted in the habitual use of cathartics, complicated with periods of excessive proctalgia, the pain extending as high as the sacral promontory, especially on bending or after any motion. Attributing all this to uncured constipation, the patient had last night resorted to an ounce of castor oil, followed by a copious stool and now constant tenesmus, with severe rectal pain, extending to the lumbar region. There also was present considerable strangury, especially at night, with retention of urine which dribbles away in the daytime; the catheter found the bladder empty.

The treatment and directions, of course, consisted in excluding cathartics, recommending a reasonable diet, and advising the free drinking of water; but the consummation of these directions in this case involved one of the most severe battles ever encountered between the doctor and the object of his treatment, for the word "patient" finds no place here. Still the result at least was a truce, and a vague promise to try the medicine, which was atropia in water, a teaspoonful every two hours.

February 7 the report was a comfortable night with decided diminution of pain. But this patient, like many others, was governed by the inherited prejudice of more than a thousand years of vast medical progress, and had therefore taken another dose of castor oil, with resultant discharges of serous and mucous fluid; for her bowels were empty of food and now again she was tormented by constant tenesmus and proctalgic pain. She declared that she must have something done at once, and refuses to stop the cathartics, for she must keep the bowels open. Under such delusion she grew steadily worse. Still who could blame the poor deluded creature, who was only acting in accordance with the superlative wisdom of the dominant medical, so-called regular school? This can be summed up in a few words: A medical course of five years of lectures, clinics and laboratories,

then ten to twenty years of practice, the resultant knowledge of which is : cathartics, opium, whiskey.

This pupil of fate and science demanded all three at once. This modest request implied more than even the most progressive homœopath could grant ; the written instructions of yesterday were read again with accentuated rhetorical emphasis, and the assurance of instantaneous withdrawal from the case unless these instructions were followed to the letter. Instead of being admonished to depart, I received the unexpected acquiescence in my advice, namely, to remain in bed, to eat only soup and gruel for two days, to drink water every two hours, and to avoid cathartics, opium, and whiskey. The prescription was atropia sulph. in water, as on the previous day.

On February 9 the severe aching was relieved ; patient passes more urine. The diet was continued, and strychnia sulph. substituted for previous medicine on account of slight dizziness and headache. One pellet of the 3 x trit. was now given every night and morning, and every precaution taken not to disturb the now peacefully resting bowels after ten years of unparalleled abuse. Only once, on February 13, that is, only seven days after beginning the milder treatment, did the now slightly more tractable invalid yield to the temptation of taking a water enema for which there was no need, and the penalty was a violent attack of proctalgia, for which this time, for the purpose of testing its efficacy, croton 3 x was prescribed. The next report was that she had been very well for two days ; but as is usual with hypochondriac neurotics, the very favorable statement of improvement was accompanied with constant worry about constipation, and clamoring for cathartics, which, of course, were withheld, and fortunately the patient for once yielded to reason, for she had no pain. The croton was continued during the day time, and on the eighteenth a normal stool occurred, probably the first for many weeks. On the twenty-fifth there had been no pain for a week, and only normal stools had occurred. The patient eats properly, sleeps well, has no pain, and the bowels move regularly enough.

It might naturally be inferred now that this typical invalid was contented, and that she rewarded her medical slave by her smiles of gratitude. Far from it ; this poor deluded being's last words were, "Something must be done for the constipation."—*New England Medical Gazette*, July 1897.

# THERAPEUTICS OF CONSTIPATION, DIARRHOEA, DYSENTERY, AND CHOLERA. 150. LITHIUM CARBONICUM.

## **Constipation :**

1. No st. (first day). Two hours after dinner, a hard st., the first since day before yesterday (second day).
2. St. first hard, then soft and bright yellow (yesterday evening he ate eggs in bread soup).

## **Diarrhoea :**

1. St., usually passed only by considerable straining, because of its solidity, was soft and easily discharged (2nd morning).
2. Waked early by a pain in abd., followed by D.; same next day; had five or six more sts., without much pain.
3. Soft, yellow st. (morning). Very offensive D. (2nd night).
4. Diarrhoeic sts., in the morning, immediately after chocolate (4th day); also after fruit.

## **Anus :**

1. Itching in anus, very sharp, sudden, and short (after 10½ h).
2. Violently painful, dull stitch in front of anus in perineal region, from within outwards and from above downwards, when walking (after 8½ h).

## **ation :**

1. After chocolate; after fruit.
2. Early morning. Night.

## **Before St. :**

1. Pain in abd.

## **General Symptoms :**

1. Memory for names less retentive than usual. Disposed to weep about his lonesome condition.
2. Violent headache in vertex and temples (could hardly keep eyes open) worse from looking at anything, cannot remain lying down, better when sitting, relieved by going out, and also while eating.
3. Eyes pained *during and after reading*, and the lids especially were sore. On 2nd day of menses, while reading, was obliged to go out of doors; on coming back noticed an *uncertainty of vision*, AND VANISHING OF RIGHT HALF OF OBJECTS LOOKED AT; OR IF TWO SHORT WORDS OCCURRED IN SUCCESSION, THAT ON RIGHT WAS INVISIBLE; she tried each eye alone, it was the same with both; during the uncertainty of vision, pain over eyes and tension, as if *bound* in the temples, ceasing while eating, but soon became an unpleasant sensation in temples, going away during sleep.
4. Pain behind left ear in bone extending towards neck. Pain went from throat into left ear, and caused earache.
5. Coryza; must blow the nose a great deal; more mucus hangs behind in the nares.
6. Pain in right malar bone, from below upwards.
7. Pain in right molar teeth, also in a left molar tooth. Sore throat posteriorly, on right side.

8. Striking decrease of appetite, easily satisfied. No desire for wine, beer, coffee, or sugar; during eating and drinking all desire ceases, yet no aversion. Easily nauseated, before meals, when driving. Nausea, with pain in forehead. Pain in epigastrium, burning sensation, from below upwards. Fullness in pit of stom.; could not endure pressure of clothes upon the parts; pressure of hand would make her vomit. Gnawing in stom. before meal times, passing away while eating. Acidity of stom. (Hg.)
9. Very offensive flatus. Very many small, penetrating, putrid smelling evacuations of flatus. Violent pain horizontally in hypogastrium, in upper region of bladder. Moderate pain in left abdominal ring, like a pressing from within outwards, with confusion of head in both temples.
10. Pain in right ureter, and through spermatic cord into testicle. Tenesmus of bladder then discharge of clear frothy urine. Before and after micturition pains in neck of bladder and other parts of urinary apparatus. Passes less urine; although he drinks as usual. Urine turbid, scanty flocculent deposit, with mucus. Reddish-brown deposit, after diarrhoeic stools (morning).
11. Menses late, scanty; cease suddenly and headache comes on. Before menses symptoms most violent on left side, after on right side.
12. Rheumatic soreness in cardiac region, worse on stooping. Pains before and at time of urinating, better after; also before and at time of menses, better after. (Heart disease, with induration and insufficiency of Aortic valves. Air on inspiration felt unpleasantly cold, even in lungs.)
12. Sleep disturbed by pains in sacrum and feet, urination, offensive diarrhoea, tenesmus vesicae, erections which subside on urinating; voluptuous dreams.
13. Prostration of whole body, especially knee-joints and sacrum. Paralytic stiffness in all limbs and in whole body. Bones, muscles, joints, whole body sore as if beaten.
14. Left middle finger painful through and through. Rheumatic pains in lower extremities.

**Remarks:** LITHIUM CARB. has not been used for bowel complaints in our school. Even Dr. Hering, by whom the drug was introduced and proved, did not think of it in these complaints. But the symptoms it has produced on the alimentary apparatus from the stomach downwards are such as to deserve attention. It is likely to be useful in diarrhoeas which are worse at night or early in the morning. The stools are yellowish and very offensive. Offensive flatus and aggravation from chocolate and from fruits may furnish additional indications. It should be particularly applicable to persons suffering from uric acid gravel, and from acidity of the stomach which is relieved by eating. Symptoms corresponding it may be useful in constipation. The characteristic hemiopia and cardiac symptoms will help in its selection.

## 151. LYCOPodium.

### Constipation :

1. St., not daily, sluggish, and no call. St., every other day.
2. No call to st., in the morning, but instead of it in the evening; but though there is a decided call, only little is discharged, being pressed out with much straining. The call to st. comes only in the evening, with distended abd.
3. Scanty st., with a sensation as if much remained behind, and, at once after it., much accumulation of flatus in abd.
4. St., scanty, daily, with much straining and burning in rectum.
5. First part of st. knotty, second soft, for many days.
6. Lumpy st., in small pieces.
7. St. dry and hard, for three days, more than usually indolent.
8. Very difficult st., though soft, from contraction of the rectum.
9. Two hard sts. passed with difficulty and pain in anus, after which no st. for two days, then another hard st. in evening passed with difficulty and tearing pain in rectum; two days after a similar st.
10. St. hard, with great pressure, tenesmus, and burning like fire extending from anus deep into rectum.
11. St. very hard at 4 p.m. instead of 8 a.m. as usual

### Diarrhoea :

1. D., with colic, mostly very early in morning.
2. Urging to st. in morning, D. in afternoon.
3. Thin sta. mixed with hard lumps.
4. D. six times, with violent griping, from morning till noon.
5. D., consisting of *green*, excessively offensive faeces. D., with griping and tenesmus, from 12 to 3 o'clock.
6. D. twice in forenoon, preceded by griping. Frequent D.
7. *Yellow*, watery D. with burning in anus.
8. *Yellowish-white* D., with increase of pain in abdominal walls, so that even laughing was painful.
9. *Greenish*, pasty st., preceded by pain in stom. and intestines.
10. Several soft sts. passed with much exertion, without emission of flatus.
11. Pasty st., once or twice a day, several weeks. Pasty st., soon followed by renewed urging as if D. would come on, but only a small faecal st. harder than the first was passed.
12. Very *pale* colored st. Very foetid st.

### Dysentery :

1. Urging to st., an hour after the normal st., followed by discharge of pasty faeces with mucus.
2. Profuse discharge of thin mucus, with scanty st., at noon.
3. Soft, pasty st., with tenesmus and dragging in rectum as in dysentery.
4. Discharge of blood during st., even with a soft st.

### Rectum and Anus :

1. Constant but ineffectual urging to st., with griping in abd., with distended abd.; or with emission of flatus and relief of gastric symptoms.

2. Urging to st., followed by spasmodic pain in rectum preventing passage of feces.
3. After a natural st., urging continues, but without result.
4. Rectum frequently so contracted that it protrudes during a hard st. Anus painfully closed.
5. Feeling of fulness in rectum even after a copious st.
6. Cramps in small of back and sacrum, like labor pangs.
7. Pressive pain in rectum, with spasmodic pains in abd., so that she (being pregnant) thought she was very near her confinement, though this came on a fortnight later.
8. Sticking and sore pain in rectum. Tearing in rectum, taking away the breath.
9. Painful itching and burning in anus and rectum. Stitches in rectum and anus. Itching eruptions on anus.
10. Hæmorrhoids painful, sticking, burning, protruding even during a soft st.; painful to touch and while sitting, so he could not bear to sit down.
11. Pinching-cutting in perinæum and anus.

#### **Aggravation :**

1. After midnight, early morning, morning, forenoon, after noon till 4, evening.
2. From cold articles of diet, beer, milk, fruit, vegetables.

#### **Before St. :**

1. Strong desire or desire wanting.
2. Pain in stom. and intestines.
3. Flatulent colic.
4. Straining efforts, often followed by tenesmus.
5. Chilliness in rectum.

#### **During St. :**

1. Smarting and burning in anus.
2. Shooting, and burning in rectum.
3. During hard st., pain in sacrum as if it would break ; with colic as if bowels would burst.
3. Pain in upper part of head, buzzing in ears ; a shock in temples.
4. Discharge of blood.
5. Protrusion of rectum, of varices.
6. Great pressure and tenesmus and a sensation of burning like fire from anus deep into rectum (during hard st.).
7. Tenesmus and dragging in rectum.
8. Colic. Violent griping.

#### **After St. :**

1. Continued, ineffectual urging.
2. Burning, itching in rectum.
3. Sensation of fulness in rectum.
4. Violent contractive pain in perinæum.
5. Cramp in abd. and uterus, across hypogastrium.
6. Flatulent distension of abd., with rumbling.
7. Heat and pressure of head and weariness in thighs.
8. Great lassitude.

#### **General Symptoms :**

1. Sad, hypochondriac mood. Child loses its cheerfulness, be-

- comes quiet and dispirited, or disobedient. Seeks solitude; dread of men; feels anguish when persons come too near; flees from her own children. Timid all day, easily frightened and startled, or excited to vexation and anger, partly against himself, partly against others; quarrels in mind with absent persons; as if insane, she seeks for quarrels, makes ungrounded reproaches, abuses violently and beats the person she abuses.
- 2. Impeded mental activity. Can properly speak on exalted, abstract subjects, but confused about everyday matters. Selects wrong words in speaking and writing, cannot read because he mistakes and confuses the letters.
- 3. Vertigo in the morning, when and after rising from bed; in a hot room; on rising from a seat. Wakes at night with vertigo and nausea.
- 4. Throbbing in brain, on leaning head backward. Throbbing headache after every paroxysm of coughing.
- 5. Inflammation of eyes with agglutination of lids; ulceration and redness of lids, with corrosive lachrymation. Far-sightedness. Hemipopia; right half of objects not seen at all or only obscurely. Sparks of fire, or floating black spots before eyes. Photophobia.
- 6. Suppuration and discharge from the ears. Sensitiveness to noise. Humming, whistling, and roaring in ears.
- 7. Painful swelling of tip of nose. Frequent sneezing and fluent coryza. Complete stoppage of nose, preventing breathing at night; fan-like movements of *alæ nasi*. Excessive dryness of nose. Heat in nose and burning in eyes. Increased acuteness of smell, even odor of hyacinths causes nausea. Complete loss of smell.
- 8. Face red, puffy, full of dark spots covered with pustules. Remarkable redness of face, in morning, or after a meal. Pale, sickly, sunken, pinched face. Pale yellow, or yellow face. At first redness, then frightful paleness of the cheeks. Swelling of lips, especially of the upper.
- 9. Teeth painful when chewing and when touched, as if suppurating. Throbbing toothache with swelling of gum. Looseness of teeth. Profuse bleeding of the gums when cleaning the teeth. Teeth turn yellow.
- 10. Tongue coated, thickly white, or yellow; involuntarily slips in between lips and teeth; also involuntarily darts out of mouth, and to and fro between lips. Tongue swollen wholly, or in places, and painful, hindering speech. Talk nasal. Blisters on tongue with burning. Ulcer under tongue, troublesome on eating and drinking.
- 11. Bad odor in mouth. Dryness of mouth and throat, with acidity, with bitterness. Saliva runs from mouth, at night in sleep; accumulation of saliva, with nausea; she is obliged to spit constantly; saliva of a saltish taste.
- 12. Taste, sour in mouth and palate, after all food and drink, with



inclination to acid eructations; sour, of all even sweet things; violent bitter in morning, and at night, so that she must rise to rinse her mouth; bitter, of all food; very sweet, taste of water quite as sweet as sugar.

13. Sensation as if a ball rose from below up into throat. Throat feels too narrow during deglutition; food and drink regurgitate through nose. Soreness in throat, on swallowing and coughing. Ulcers on tonsils like chancres. Oesophagus seems inactive or contracted, so that food goes down slowly or not at all. Swelling and pain of submaxillary and cervical glands.

14. Canine insatiable hunger and hasty eating; if she does not eat during hunger, gets headache which passes off after eating. Complete loss of appetite but much thirst; can not eat at all, is always satiated, feels a loathing even unto vomiting when eating; best food at times disgusts him before he tastes it, but afterwards cannot eat enough. Aversion to solid food, especially meat; to coffee and tobacco. After all food and drink, sour taste in mouth and palate with tendency to sour eructations.

After a meal; bad taste with accumulation of water in mouth, nausea in fauces and stom. even to vomiting; much thirst; frequent eructation; inflation of stom. and abd.; frequent hiccough; colic, pinching in abd.; heat in head, black specks before eyes; burning redness of face, then fearful pallor; urgent, ineffectual desire to urinate; irresistible drowsiness; shivering without chill.

During meal: much nausea, even to fainting, sweat on forehead and complete loss of appetite; pressure or constant shooting in forehead; as if food touched a sore spot.

No thirst. Or constant thirst with dry mouth and lips, she would like to drink all the time, but when she took a little sip, she felt repugnance to it, and could not get it down; she felt sick, weary, and languid.

15. Frequent empty eructations. Eructations tasting of the food; with risings of salty mucus, of digested food; sour, bilious.

Heartburn after eating, worse from tobacco smoke. Heartburn and nausea in stom., obliging him to lie down. Nausea, every morning fasting; on looking at food; aggravated by reading; during menstruation. Child vomits mucus five times after mid-day nap. Vomiting of food and bile; of clotted blood and sharp acid.

Violent pain about stom., could not lace herself, or bear anything tight over the part; by sitting bent over, or by external pressure. Burning in stom. and abd., extending up to oesophagus and throat. Cramp in stom. before eating, with ineffectual eructations, renewed by wine. Heaviness of stom. as if over distended after eating but little, relieved by rubbing. Epigastrium extremely sensitive to touch.

16. Liver painful to touch. Sharp pressure beneath last right ribs, on deep inspiration and in turning sideways, also when pressing on right hypochondrium. Violent spasmodic pain of the diaphragm in hepatic region on stooping or from other slight causes, as if liver was wrenched. Itching in the interior of the liver. Painful tension in left hypochondrium. Eating to satiety causes an unpleasant and distressed feeling in hepatic region.
17. Flatulent distension of abd., several afternoons, beginning at 4 o'clock. Rumbling in abd., especially in left hypochondrium. Accumulation and incarceration of flatulence. Heavy weight in abd., especially in left side. Gripping and pinching about umbilicus and abd. generally, relieved by emission of flatus. Skin of abd. painfully sensitive. The herinal sac protudes (immediately after menstruation) with tearing pains. Small glandular swellings in the groin. Red swelling in the right groin, with pain as of suppuration, on motion and touch.
18. Burning and smarting in male and female urethra while urinating. Frequent, ineffectual urging to urinate. Frequent micturition, with interrupted discharge, and subsequent dribbling. Involuntary micturition at night, while dreaming that he was at the urinal. Urine profuse; frothy, dark. Strong odor of urine. Urine dark, reddish-brown, with red sediment. Urine turbid, as if mingled with brick dust. Urine burning hot.
19. Discharge of prostatic fluid, with erection. Discharge of blood from the urethra. Diminished sexual desire and power. Exhausting emissions. Penis small and cold. Violent burning in vagina during and after coition. Much milky leucorrhœa; frequent discharge of blood-red leucorrhœa before full moon. Brought on menses after five month's stoppage. Menses too early and scanty.
20. Frequent palpitation and cough on ascending steps, and after exhaustion. Acceleration of pulse with coldness of face and feet.
21. Paralysis of cervical muscles, causing head to fall backwards and forwards, or sideways. Fingers spread out involuntarily, again drawn together; same with thighs. Cold, sweaty feet.
22. Even while walking, she cannot keep from falling asleep. Restless sleep from excitement. Sleep restless, from confused, frightful dreams. Starting up when about to fall asleep. Screaming in sleep, with delirium. Nightmare. At night no position comfortable.
23. Great emaciation. Complete exhaustion; hanging of the lower jaw; slow respiration through mouth; filmy, half-open eyes. Epileptic attack, with screams and frothing at the mouth; beating about in unconsciousness with arms and legs; consciousness restored by putting water into mouth which was ejected.

24- Desire to go into the open air; generally better in 'open air.

Feels weakness most during rest. Symptoms aggravated at 4 p.m., better by 8 p.m., when only weakness remains.

25. Itching of all parts of the body, especially of the scrotum, keeping patient awake all night, with unusual perspiration. Eruptions both dry and moist. Boils, large, or small in clusters. Intertrigo. 'Plica Polonica. 'Aneurism.

**Remarks:** The pathogenetic symptoms of LYCOPodium are so numerous and varied as to be almost bewildering. It has not been easy to condense them into an intelligible whole without taking rather unusually too large a space for the purpose we have in view. But this was necessary, as though the stool symptoms are characteristic enough, the general symptoms are more so, and therefore must be associated together, in order to be of real help in the selection of the drug for bowel complaints. Without going with Dr. Bell so far as to say that "the symptoms of the stool are subordinate," we may say that in no drug are the general characteristics so important.

LYCOPodium has been chiefly used for constipation, especially when chronic, the stools being hard, dry, lumpy, passed with much straining and attended with burning in anus and rectum, with pain in sacrum as if it would break and colic as if bowels would burst, with a sensation as if much remained behind, and singularly enough followed by flatulent distension of the abdomen.

The drug has been seldom used for diarrhœa. Even Hahnemann does not mention such use of it. Dr. Teste was, we believe, the first to use it successfully in the acute diarrhœas of children, which go by the name of cholera infantum, and are the result of an inflammatory condition of the intestines caused by the ingestion of indigestible heavy and fermentable farinaceous food. The stools, in this condition, are pale, or yellowish-white or yellow, or green, very offensive, watery, or watery and mucous, or pasty, or mixed with hard lumps, preceded by pain in stomach and intestines, and attended with violent griping in intestines, with burning in anus. It has been found useful in the diarrhœa of pregnancy, in chronic diarrhœas, which are caused by drinking cold water, the stools occurring daily between 3 and 4 p. m., preceded by severe abdominal pains, eructations after eating, and worse from cold articles of diet, beer, milk, fruit, vegetables. Tympanites and rumbling in the intestines, the result of the production of much flatus, which accumulates here and there, are a very characteristic abdominal symptom of LYCOPodium.

Though true dysenteric stools have not been observed in its pathogenesis, the general and specially the gastric symptoms agreeing LYCOPodium may be found useful in this condition also. A case was recorded by Dr. Holcombe (in the *Medical Investigator*, vol. ix, quoted in *Raue's Record* for 1872) of a lady who had excessive flatulence, constant and distressing pressure in rectum, urgent straining, with shuddering and sense of inefficient evacuation, discharges of small shaggy, reddish mucus, passed with great difficulty with coincident tenesmus of the urethra, and was promptly cured by *Lyc.* 200.

**Glennings from Contemporary Literature.****THE THERAPEUTICAL ASPECTS OF TALKING, SHOUTING,  
SINGING, LAUGHING, CRYING, SIGHING,  
AND YAWNING.****By HARRY CAMPBELL, M.D., F.R.C.P. Lond.**

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The respiratory movements have wide-reaching effects. They not only lead to the flow of air to and from the lungs, but they profoundly influence the circulation of the blood and lymph; they also affect the functions of the abdominal and pelvic viscera by rhythmically compressing and dislocating them. Now, these movements are liable to constant modification in the physiological acts of talking, shouting, singing, laughing, crying, sighing, and yawning (as also in the occasional and semi-pathological acts of sneezing, coughing, vomiting, and hiccoughing), and it therefore follows that these acts are more far-reaching in their effects than would at first sight appear, and hence are worthy of our careful study. This will the more readily be granted when it is added that they affect the body, not only by modifying the respiratory movements and thus producing the effects already mentioned, but by involving the expenditure of a considerable amount of neuro-muscular energy, and by inducing definite psychic phenomena which themselves have their physical accompaniments. In brief, any one of these acts—e. g., singing,—cause (a) a modification in the circulation of blood and lymph; (b) an alteration in the functions of the abdominal and pelvic viscera; and further leads to (c) a considerable discharge of nervous and muscular energy; and (d) numerous changes (muscular, glandular, and other) throughout the body in consequence of the attendant psychic change.

Seeing, then, how far-reaching are effects of these several acts, and remembering how large a part they play in normal life, we may safely conclude that they influence the functions of the body beneficially, and that an undue interference with them is injurious. One is apt to forget how strong is the instinct to shout and sing, laugh and cry. It is especially noticeable in the savage and in the child. If these instincts are unduly repressed in the child he is sure to suffer. Crying should certainly be restrained within limits, but there can be no doubt that it is primarily physiological, not only favouring the proper expansion of the lungs and accelerating the circulation, deadening the effects of pain and relieving nerve tension (especially in woman). Rosbach thinks it not improbable that many evils which manifest themselves in later life, such as chlorosis, contracted chest, and the phthisical habit, "may take their origin in the practice of mothers to stop their infants from screaming by soothing them to sleep in their arms or by stupefying rocking in the cradle."\* It is well

\* Von Ziemssen's *General Therapeutics*, vol. iii. p. 581.

known that children show a strong instinct to chatter and sing the first thing in the morning, and it should be allowed full vent as far as is practicable. The shouting which young people indulge in during their play is quite remarkable and is manifestly physiological. The same tendency to shout is observed in young adults, especially among the poorer classes in holiday time. Though from the physiological points of view justifiable, and even beneficial, the noises they make are certainly not always pleasing, especially to the sensitive nerves of the cultured amongst whom this instinct is consequently suppressed, though whether altogether to the gain of the individual is questionable.

The various acts referred to will now be considered individually.

*Talking.*—As regards the psychic aspect of talking, thought becomes much more vivid if it finds expression, whether in speech, writing, music, or artistic production, than if it remains unexpressed. The physical effects of thought are more pronounced in talking than in writing. The cortical nervous discharges underlying it send a stream of energy towards the muscles involved in speech and gesture, and both voice and gesture can be modified to convey subtle shades of thought and feeling which cannot find expression in writing. The very expression of these refinements enhances the vividness and intensity of mentation. Talking is for this reason stimulating, and its influence in this respect is in a measure proportional to the gesture accompanying it. Few things are more calculated to stimulate the body, to rouse it from lethargy, than “animated” conversation. In talking, as in laughing, shouting, singing, and crying, inspiration is short, while expiration is prolonged, the exit of air being checked partly by obstruction in the glottis and partly, perhaps, by the action of inspiratory muscles. The actual amount of work done, in talking is far more than might at first sight be supposed, and should always be taken into account in reckoning up the quantity of exercise taken during the day. The amount of talking done by barristers, politicians, and others enables them to dispense largely with exercise as ordinarily understood; for not only do they in this way expend a considerable amount of muscular energy, but they experience the manifold advantages of active respiratory movements continued for long periods together; indeed, I believe talking to be distinctly conducive to longevity. That talking involves a considerable expenditure of energy is shown by exhaustion which it induces in those who are nervously run down. Such are often greatly exhausted even after a moderate day’s talking. The exhaustion is due to mental as well as to muscular expenditure; indeed, in the very neurasthenic the bare process of thought may be an effort and the mere effort to think may alone cause exhaustion; and if such is the case, how much more likely is the putting of thought into speech to do so, seeing that, apart from the muscular expenditure involved in speech, thought is so much more intense when spoken than when unexpressed. Talking is a beneficial exercise in heart disease, especially in those forms in which the blood tends to be dammed back upon the lungs. The good effect is here doubtless due to the increased amplitude of the respiratory movements

and to the help thus afforded to the pulmonary circulation. It is for this reason that I always encourage talking in those suffering from passive engorgement of the lungs. "The breathlessness due to dilatation of the heart," observes Sir William Broadbent, "is often relieved by exercise of the voice. I have met with numerous instances in which a clergyman has climbed into the pulpit with the utmost difficulty, and has not only preached a sermon comfortably, but has been all the better for it."\* The good result, I take it in these cases is attributable to the deep inspirations required by the loud voice necessary to fill a large building.

*Shouting.*—The psychic accompaniment of shouting is essentially emotional. Emotion is not only expressed, but sustained, indeed, intensified by it. Thus the shouting of children at play, itself the outcome of exuberant emotion and pent-up neuro-muscular energy, enhances the emotional outburst. In like manner the hurrahs of an applauding multitude, the cry of the huntsman, the war-whoop of the savage, the yells of an attacking force may so exalt emotionality as to induce a condition bordering on ecstasy. A further effect of shouting is to dull sensibility, the emotional exaltation which it provokes, and the voluminous discharge of neuro-muscular energy accompanying it, inducing a corresponding depression in the sensorial sphere. It is on this principle that groaning, and still more the shriek of acute agony, bring relief. The mere sound produces a similar effect by violently energising the acoustic centre.† The shouting and gesticulation which accompany an outburst of passion act physiologically by relieving nerve tension; and, indeed, as Hughlings Jackson has suggested, swearing may not be without its physiological justification. Passionate outbursts are generally succeeded by a period of good behaviour, and, it may be, improved health. One frequently notices this in children, and I have also observed it in the adult. It is possible that the outbursts of irritability observed in disease, as, for instance, in gout, have their physiological as well as their pathological aspect. As regards the modifications in respiratory movements caused by shouting the important practical point to notice is that they are increased in depth. Hence shouting favours the development of the lungs and accelerates the circulation of blood and lymph.

*Singing.*—Singing, like shouting, is more emotional than intellectual, the degree of emotion called forth depending upon the extent to which the individual throws himself into the spirit of the song. The nature of the attendant emotion varies of course considerably, and there is a corresponding variability in its physical correlatives: if the theme of the song be joyous the proper rendering of it is highly stimulating. In singing there is a great disproportion between inspiration and expiration, the former being much the shorter. Moreover, during these long expirations the glottis is constricted, and the free egress of air being thus prevented

\* THE LANCET, April 4th, 1891, p. 798.

† A famous quack extracts his patient's teeth to the blare of trumpets and the boom of the big drum.

intra-pulmonary air tension rises and frequently the flow of blood to and from the right heart is impeded, but this temporary retardation of the blood-flow may be more than compounded for by the acceleration which takes place during the succeeding deep inspiration. The obstruction of the glottis increases as the scale is ascended, and seeing that the expiratory force employed in the delivery of the upper notes is, for the most part, greater than employed in the production of the lower, it follows that high singing, especially if *fortissimo*, impedes the circulation more than low singing. From the medical stand-point singing is a most important exercise, both by virtue of its influence on the emotions, on the respiratory movements, and on the development of the lungs. The good average health enjoyed by professional singers is in large measure attributable to the mere exercise of their calling.\* Such therapeutic importance do I attach to singing that I recommend it wherever opportunity affords. It is especially useful in defective chest development and in chronic heart disease. Oertel speaks enthusiastically of the beneficial influence of singing on the general health, and especially on the lungs, and he refers to the fact that almost all eminent singing masters can tell of serious cases of lung disease which have been cured by their method of singing. He thinks there can be no doubt that weak chests of various kinds can be greatly improved by it, and he would even appear to include phthisis. "In consequence of the reports sent in from various quarters on the healthy influence of singing on the respiration and circulation and on the strengthening and nutrition of the lung, the practice of singing has been introduced even into prisons in order to antagonise pulmonary consumption, which generally develops in a short time amongst the convicts. The method of singing devised by Fried-Grell is especially adapted for our national schools and ought to be generally introduced, like gymnastics, from a sanitary point of view."†

*Laughter.*—The psychic accompaniment of laughter being joyous emotion, its effect is stimulating, and it has been truly said that the man who makes us laugh is a public benefactor. Its beneficial effect on the body is illustrated by the saying, "Laugh and grow fat." The expiratory act in laughter is greatly prolonged, and, the glottis being partly closed, intra-pulmonary tension is increased; and thus in excessive laughter there may be considerable impediment to the flow of blood through the lungs, as shown by the turgid head and neck. This disadvantage—is far more than compensated for by other effects, foremost among which must be reckoned the deep inspirations which separate the individual paroxysms.

*Crying.*—In thinking of the term "crying" one must distinguish between the mere shedding of tears, and weeping accompanied by sobbing. In

\* The splendid chest development of public singers is, of course, not entirely attributable to the constant exercise of the voice, since no one can attain high excellence without having a good chest development in the first instance. It must also be observed that every singer who attains to fame is careful to lead a healthy life.

† Von Ziemssen's General Therapeutics, p. 582.

the one life effects are limited, while in the other the entire body may be convulsed. I have already referred to the beneficial effects of crying in children. The crying of the infant is peculiar. Expirations are prolonged sometimes for as much as half a minute, and are interrupted by short inspirations. During the expirations the glottis is contracted and the intra-pulmonary pressure rises considerably. Not only is the pulmonary circulation thereby greatly impeded, as shown by the swollen veins of the head and neck, but bronchial mucus, flatus, and other noxious matters are evacuated. The paroxysm is succeeded by rapid deep respirations, which restore the equilibrium of the circulation. Women likewise often derive benefit from "a good cry"—the profuse flow of tears lessens blood-pressure within the cranium; voluminous discharge of nerve energy relieves nerve tension; the sobbing movements of respiration influence in a very decided and doubtless beneficial way the circulation and the movements of the abdomino-pelvic viscera; while the widespread contraction of the muscle system has probably also a good effect. How pronounced are the dynamic effects induced by completely abandoning oneself to a fit of crying is shown by the exhaustion which it entails. It is partly through this exhaustion that crying induces sleep; we hear of "crying oneself to sleep," though this must be but a very crude explanation of the phenomenon. The tendency of women to cry should, of course, be kept within proper bounds, but certainly harm may result from its complete suppression, as Tennyson recognises in the line

"She must weep or she will die."

It is said that women who are able to find relief in tears keep their youth longer than those who repress them. The internal cankering action "like a worm in the bud" of pent-up emotion is not only a beautiful poetic conceit, but a profound physiological truth. In short, strong emotion should receive expression—"give sorrow words."

*Sighing*.—"A sigh is a deep thoracic respiration, with retraction of the abdomen."\* The retraction of the abdominal muscles leads to a compression of the splanchnic veins. This compression is probably increased by slight descent of the diaphragm. The blood is thus pressed out of those veins into the right heart, and the flow into this chamber is further favoured by the deep inspiration which also aids the circulation through the lungs. Now Hill has pointed out† that the blood accumulates in the splanchnic veins in syncope, and that "a deep sigh is the first obvious sign of improvement." That the act of sighing in syncope has the effect maintained is shown by the observation of Stephen Hales. He noticed that the arterial blood-pressure in horses rises considerably on deep sighing and that the same effect is produced in dogs by firmly pressing the abdomen.‡ The sigh of syncope is comparatively rare. A much more common cause of sighing I believe to be shallow breathing, however

\* L. Hill: *Journal of Physiology*, vol. xv. p. 48.

† Loc. cit.

‡ *Statist. Essays* (London, 1733), vol. ii. p. 33, referred to by L. Hill. op. cit.



induced. Thus sadness and a sense of weariness or boredom are wont to be attended by shallow breathing, and in all of them sighing is frequent. In consequence of this shallow breathing blood-aeration lags behind, and the blood tends to accumulate in the right heart and systemic veins. The sigh benefits by promoting the aeration of the blood and quickening the pulmonary circulation, and it is for similar reasons that sighing is apt to occur during a state of "breathless attention"—when the attention, i.e., is so strained that one forgets, as it were, to breathe adequately.

*Yawning.*—It is difficult to describe accurately this act. A deep and prolonged inspiration is taken through the mouth and nose, the mouth being widely opened and the nares dilated. The opening of the mouth is effected by a strong tonic contraction of the depressors of the lower jaw and by the extension of the head and consequent elevation of the upper jaw. At the same time the limbs and trunk are "stretched." There is, in short, a widespread tonic contraction of the muscle system. This continues and indeed reaches its climax during the expiratory portion of the act, the mouth being kept open till towards the end of it. The expiratory blast is directed solely through the mouth owing to the elevation of the soft palate, and the vocal cords approximate, a characteristic sound being produced in the larynx, while there is a peculiar contraction of the muscles at the back of the throat the nature of which I do not understand. There can be little doubt that one of the objects of yawning is the exercise of muscles which have been for a long time quiescent, and the accelerating of the blood and lymph flow which has in consequence become sluggish. Hence its frequency after one has remained for some time in the same position—e.g., when waking in the morning. Coöperating with this cause is sleepiness and the shallow breathing which it entails. This factor, as well as muscle-quiescence, is apt to attend the sense of boredom which one experiences in listening to a dull sermon. Hence it is that the bored individual is apt to yawn. As in the case of sighing, the deep breath which accompanies the act of yawning compensates for the shallow breathing which is so apt to excite it. I am unable to offer any explanation of the yawning—or, rather, gaping—which is induced by exhaustion from want of food. This mere gaping is, however, quite distinct from yawning, which is a much more complex phenomenon. Allied to yawning is a modification of the breathing which is apt to occur during sleep. A deep breath is taken more or less suddenly, and this is followed by a long-drawn-out expiration with probably closed glottis and a groaning sound. This kind of breathing has certainly some physiological import, but what it is I cannot say.—*Lancet*, July 17, 1897.

## A DRUG PICTURE.

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Much has been written and spoken of the so-called "Drug Picture." A term not always understood and often misleading.

A picture is associated in our mind with a representation, a resemblance, a portrayal of some person, thing or event, that is as real and effective in proportion as it is artistic. Or it may be a description or a scene painted in language that presents a mental image more or less real as it affects the hearer. Ben Jonson calls it "an invention of heaven."

Now, how can this term so often associated with the grand and the sublime be used to illustrate the study of a drug? Let us see.

Go with me through the ward of any hospital, glance at the faces, the expressions and the positions of the patients in the cots. Can you be oblivious to the different conditions that are so apparent between each and every one? Can you avoid drawing a hasty, diagnostic conclusion, often wide of the mark, and is there not in your mind a sudden mental arrangement of the train of symptoms of some disorder, causing you to make a diagnosis of each case before you have asked a single question? But little skill is required sometimes to differentiate between a case of icterus and of marasmus, but even where the disease is less distinct in its expression, do you not see a picture in each bed that suggests a cause, a result and a name? I grant you it is often uncertain, and often illusionary. But what of drugs?

For the purpose of this paper we have little to do with the diseases, the learned diagnostician has preceded us, and over each cot is written the name of the ailment, and beside it the one, two or more drugs that the good, bad or indifferent prescriber has left, and the patient has had the fortune or misfortune to swallow.

In the first cot we see a child, a girl. The hair is short and red. The face is pale. The lips are dry and cracked, the nose is big—the mouth open, the eye-lids are red, there are sores about the ears, scales in the hair, little blotches everywhere. The face is clean in spots, for the nurse has done her duty. The fingers are coarse, the nails are dirty, from the nostrils a little pus-like mucus oozes. The expression is one of anxiety, of suffering. The child's face is an animated interrogation, all over it is written the question, "If I am so soon done for, I wonder what I was begun for?" You draw nearer the child, she instinctively draws away. Notwithstanding you have put on your sweetest smile—a possible explanation—she begins to cry and scream, and resents most wilfully all your efforts at conciliation. But you finally get a half consent, and she lets you approach, always suspicious. You suddenly find yourself near enough, for odors, not of the sweet perfumes that you love, but that resemble more nearly

"the seven distinct kind of stinks that mark the River Rhine." "But you have long since become accustomed to this, and you try to take her hand, after some calisthenics you succeed. It is snatched away. In anger? Partly so, she has use for that hand. You watch her, and she will be scratching herself on some portion of her body, but enough of this. A cheap frame, a dark corner, no matter how dark, you cannot hide the artist's name. *Sulphur* is written all over the canvas, so distinctly and clearly that you recognize it at a glance.

Cot No. 2.—Also a girl. Your glance takes in the sad plaintive, appealing expression. She looks at you with a longing, lingering, languishing languor that is clearly expressed in every feature. Her blond hair is scattered over the pillow. Her appearance one of indifferent disorder. No immaculate pink bow fastens her night-dress together. On closer scrutiny it is not together. The top button is gone. She does not care if two are gone. She has been crying. Traces that this feminine safety valve has recently blown off are still visible, and the pressure is near the limit still.

You take the wrist, she will always look the other way. But you can hold the wrist of this patient indefinitely. Ask her what is the matter—you must wait a little for your answer. She is sad, despondent, at first secretive, but she will tell you; it will be a little late in coming, but when it does come you will fear it will not cease, just sympathize with her a little and you will wait a little longer.

Are you familiar with the wind flower, the name suggests a lack of stability. Every symptom of the anemone emphasizes the words—too late—too late. How truly characteristic this is. Is there anything on time in *pulsatilla*? Coryza never acute, always the late stages. An indigestion, late two hours after eating. Meuses never on time, always late, and sometimes too late.

Cot No. 3.—The occupant lies with her back to you. She is awake and she hears your footsteps. Knows that you are coming. She turns her eyes a good ways; her head a little way; her body not at all in her endeavor to see who approaches. It hurts her to move, and she suppresses her curiosity until you come within range. You notice her flushed face, the round red spot on the cheek, as you draw near her an expression of fear and apprehension comes over her face. She is afraid that you will jar the bed, or cause her in some way to change her position. She persistently lies upon her right side. You observe the diagnosis is one of right-sided disease, pleurisy, pneumonia or rheumatism, it matters not which. One of the great characteristic of the disease is the relief she obtains by lying on the affected side. Watch her breathing. How superficial and restricted it is. If for any reason she is compelled to move, note how suddenly she utters a cry of pain, for sharp cutting pains announce their presence, and attain their intensity with great rapidity, and there is an instantaneous manifestation of agony, usually expressed by a quick, sharp, oft-repeated Oh! with catches of the breath. Slowly and cautiously she reaches out

for a glass of water, of which she takes a good large drink, putting the glass down with a sign of relief and carefully replacing her arm. This is a fair expression of *bryonia*, be the disease what it may. A *bryonia* patient never makes an unnecessary or an incautious movement.

Cot No. 4.—Also a rheumatic. The moment you come into the room she turns to see who it is—moving the unaffected part quickly, the affected slowly, stiffly, but if you are a close observer, the termination of the movement is much more rapid than the beginning. She will settle herself in a position where she can watch you, but will soon move again, repeating the same method as before. She wants a drink also, and reaches for the glass, not with the same guarded motion that you observed in Cot No. 3. If the water has been standing a little while, she tastes only, calls the nurse and asks for fresh cold water, and when it comes she drains the glass. Her eyes frequently turn out of the window. Her first question is of the weather. She is not feeling as well to-day, it is cloudy, the wind is in the east, a storm is coming. She knew it, she felt it in her bones. She tells you she slept well until midnight. Since then she has been worse, and she earnestly beseeches you to give her something to make her sleep, and while she talks or complains, more of the latter, she constantly changes her position, and also the subject of her complaints. The same restlessness dominates her mind that you observe in her limbs and body. She is a foreboding, moody creature, always expecting more pain. 'Tis needless to call this a picture of *rhus tox*. You have long since recognized it. Give it an ivy frame, a wide berth.

But, I must not weary you with these larger pictures. 'Tis not the size of the canvas that always denotes the skill of the artist. If you have visited the Louvre or the Pitti, you have undoubtedly contrasted the people that are attracted by the great, bloated indecencies of Rubens, and those that study Wouweman's, and the Detaille's. In *belladonna* we have a study in scarlet, everything is red and hot. The face is red, the skin is red, the eyes are bright, animated, the pupils dilated. There is a wild, startled look to the face. All of the senses seem to be intensely acute. Every thing indicates alertness, on the lookout. You feel as you study this that every touch or sound would excite, but the characteristic is redness and dryness. The scene resembles a frightened bird, chafing under restraint, trying to get away. Intolerance and fear always go with it.

Contrariness is synonymous with *ignatia*. A complete reverse of what you should expect. The *ignatia* patients cough, and the more they cough the more they desire to cough. The more you try to sympathize with *ignatia* patients the more inconsolable they become.

A *chamomilla* patient is only too glad to have sympathy. You always leave an *ignatia* patient with a feeling that you are extremely unpopular. That your visit has only irritated. You find *chamomilla* patients irritable and impatient, but if you are gentle and kind and sympathetic you leave them with smiles. *Ignatia* has clouds when you go in. It is very damp.

when you come out. *Chamomilla* is "a threatened cyclone on your entrance, but it is all sunny when you leave.

While we are using the similies of the weather, what better barometer can be found than the *mountain laurel*. The *rhododendron* patient predicts a coming storm with a greater certainty than the weather-bureau.

The ill-fed, impoverished figure of want is clearly represented in *natrum muriaticum* and in *phosphorus*, while weakness, debility and hopelessness come with the mineral acids, with *china*, with *baptisia*.

Sensitiveness, with a sullen, morose disposition, wounded feeling, are found in *arnica*, they dread your approach. If you carelessly kick the foot of the bed of an *arnica* patient he will change his doctor.

The *Police Gazette* some years ago gave a picture of this drug, Sullivan's return from New Orleans. Napoleon's retreat from Moscow would be represented by *veratrum*, the drug of all drugs to illustrate melancholia and despair.

Fear and apprehension are best found in *arsenic*. Have you seen the painting of the man dying from thirst in the desert, the sunken eye, the pale agonized face, the parched lips, the thin hands and emaciated figure, while all nature about him seems withered and dead? There is always something of the deadly about this drug, how truly here the pathological and the symptomatic harmonize, for 'tis in the deadliest of diseased forms that we find its symptoms most clearly expressed.

Incompleteness and dissatisfaction are found in both *mercury* and *cantarides*. If the winged god Mercury on the site of the old Bastille could sing, his song would be "still there's more to follow."

Lethargy and indifference by *apis*, precisely the reverse of the little animal that contributes it.

Obstinacy by *calcarea*, terror and fear by *stramonium*, egotism and pride by *plantina*, while humility and sadness are best represented by the *carbos* and *graphites*.

A *silicia* patient will have the clothes tucked in around the neck, oftentimes a shawl over the head. A *secale* patient will throw off the clothes and regret that modesty requires the presence of the sheet. The *hyoscyamus* patient throws off the sheet.

How often, in the daily routine of professional work do you see the picture of *nux*. This artist is no respecter of person. He paints all alike with unmistakable characteristics. The entire *strychnos* group are a set of hypocrites, they are genuine pretenders, they never succeed in what they attempt. Can't is their synonym and Can't is their watchword, they are always complaining, always ill-tempered, try to pacify a *nux* patient and your reward will be abuse. Ineffectual effort, be it of stomach, of bowels, of bladder, I care not what, it governs the entire drug. Their only redeeming feature is their persistence. Their Motto is "If at first you don't succeed, try, try again." But the failure is recorded in monosyllables and sentences, that are forcible if not elegant. The good old adage "Let sleeping dogs lie" applies to the whole family.

I cannot close this paper without a reference to the description of *aconite* by the Irving of our school, the late Carroll Dunham. How vividly he likens this drug to the description of a summer scene observed so often in our own country. I would not attempt even to quote from it, but no more vivid impression can be given of the brief violence of action of this drug than to read his beautiful language. And it was this word picture that has prompted me in the teaching of this subject to try and impress upon students, the great characteristics of our prominent drugs. It is the attention to little things that makes the good successful surgeon. It is the observance by some of apparently trivial things that makes the successful prescriber. By stamping upon one's mind the great physiological characteristics of the remedy, we have attained the first step toward its proper use.

Nature has infinite resources. She is never obliged to duplicate or repeat, and yet she never departs from her own unerring laws. Have you among all the multitudes of men observed two facts, two expressions, two personalities, that are precisely alike? How skillfully she works out her originality of detail, no two cases of the same disease are alike. No two provings of the same drugs can be made, in which some effects are not more pronounced upon one than another. Yet the great characteristics never change. The genus remains and transmits the same peculiarities to his own.

Go some summer day and stand upon some hill-top and let your eyes wander out over valley and stream, until they weary of the distance. And while you are impressed by the beauty of Nature's loveliest expression, you have unconsciously trodden upon two little plants, the seeds of which in some unaccountable way have become lodged in the welcome earth. Side by side they sprung into life, the same elements nourished them, the same sun warmed them, the same rains watered them. Side by side they live their brief existence and reach their ripe maturity. But flowing, in the veins of each there is a hidden force, a deadly power, that if once exerted upon the being who now crushes it with his foot would terminate his life.

And yet how different in the manifestation of their strength. One dulls and blunts and stupefies. The other excites, exhilarates and stimulates.—One pales, the other flushes.—One slows and stops the life blood in the vessels, the other startles it to leap and plunge in uncontrollable bounds.—One contracts the pupil to a pin's point, the other dilates it to its widest limit.—Each in every respect the opposite of the other. This is no accident, no whim of Nature, but the fulfilment of one of her grandest laws.

Go back to the hospital, and in the pot you will find the prototypes of the plants on the hillside, every expression, every detail complete.

To some the summer landscape would present little beyond land and water, hill and valley, sky and cloud. To another the winding river, the

rolling hills, the shading foliage, the fleeting shadows, the azure sky, the tint of cloud, all reveal a picture painted by an artist of infinite skill, of infinite power.

These same contrasts are just as apparent in the physician's calling. The one that truly observes and rightly interprets the expressions, the attitudes, the temperaments of his patients, as they are unconsciously revealed to his keen observing eye, finds the truest guides to the successful use of Nature's curative forces. — *North American Journal of Homœopathy*, July 1897.

### RUSSIAN UNIVERSITIES AND MEDICAL EDUCATION IN RUSSIA.

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In Russia a medical practitioner must not only possess a diploma, but he must have obtained his medical education and his diploma from a university ; in other words, all Russian medical practitioners are university graduates. Licence-granting colleges or schools of medicine or surgery are institutions unknown in Russia ; and so also, *à fortiori*, are schools or colleges affording facilities for medical training, though not themselves granting diplomas to practice. It is at the universities alone that students can obtain both training and diploma. There is one apparent exception to this rule, and that is the Imperial Academy of Military Medicine in St. Petersburg, or, as it is more generally called, the Army Medical Academy. Its exceptional nature is, however, more apparent than real, for the Academy may be regarded for all practical purposes as a substitute for the absent faculty of medicine in the University of St. Petersburg, which (since the very recent addition of a medical faculty to that of Odessa) is now the only Russian university without such a faculty. There are, in all, ten Russian universities, including those of Helsingfors and Dorpat (now Yurief), which have only become Russian since their foundation. They may be briefly enumerated, together with their dates of institution and mode of origin. The University of St. Petersburg was opened in 1819 in the reign of Alexander I. It was practically a development, with new organisation and powers, of the former so-called "Principal Pedagogic Institute." The University of Moscow was instituted by the Empress Elizabeth in the year 1755. It is consequently the oldest purely Russian university. The first medical degree granted in Russia was conferred by this University in 1794. The University of Kazan was founded by Alexander I. in 1804. The University of Kharkof was opened a year later by the same Emperor. The University of Novo-Rossiisk (i.e., New Russia), in Odessa, was instituted by the late Emperor Alexander III. in the year 1865 by the conversion into a university of the pre-existing Richelieu Lyceum. This was an important institution which had been founded by the Duc de Richelieu, a French *émigré*, who in 1830 became the first Governor of Odessa. The University of St. Vladimir, in Kiev, was instituted in 1833 and opened in the following year by the Emperor Nicholas I. It took the place of the former Polish University of Vilna, which was suppressed after the Polish rising of 1833. The University of Warsaw dates from 1869, when the so-called *Główna Szkoła*, or Head School, was converted into a university. It has a statute of its own dating from the year of its foundation, and differing from the statute common to most of the other Russian universities. The Uni-

versity of Yurief was known as the University of Dorpat prior to the year 1802. It has been under a Russian statute since the year 1802. The older university was founded by the great Swedish ruler, Gustavus Adolphus, in 1632. The university of Tomsk, the sole one in Siberia, was brought into existence in 1887. It has at present only a medical faculty, but it is expected that very shortly a juridical faculty will be added. The Alexander University of Helsingfors is the successor of the old Finnish University of Abo. This was removed to Helsingfors after the destruction of Abo by fire in 1827. The older university was founded in 1640.

With the exception of the last four in the above list all Russian universities are under one common code of laws or statute, the so-called University Statute (*Universitetskii Ustav*). There have been four such statutes in successive operation during the present century, those of 1801, 1835, 1863, and 1884. It is the last, that of 1884, which is now in force. Under the older statute of 1863 the universities enjoyed wider rights of self-government, and were in general more independent of State authorities, than is the case under the present law. The relation which the universities now bear to the Government authorities may be very briefly stated before passing on to consider the medical faculties and the course of education provided by them. The universities, as educational institutions, are administratively under the Minister of State for Public Instruction (*Ministr Narodnago Prosviēshchēniia*). For the purposes of this Ministry the country is divided into fifteen districts\* or circuits (*okrugs*), each of which is administered by a curator (*popetchitel*) or representative of the Government. This official is in direct touch with the university as well as with all other educational institutions of any kind whatever that may exist in his district. He has considerable powers, among which may be mentioned the appointment of the deans of faculties and of some other university officials; and he is, moreover, the direct and only link between the Government and the universities, all communications between the two having to pass through his hands. The internal affairs of the university are managed by the following authorities: (a) the rector, the practical working head of the institution; (b) the university council—i.e., all the professors, under the presidency of the rector; (c) the university board—i.e., all the deans of faculties and the inspector of students, under the presidency of the rector; and (d) the inspector of students, whose functions are generally those of a proctor.

A complete Russian university should contain four faculties—namely, a Historico-Philological, a Physico-Mathematical, a Juridical and a Medical Faculty. It will be observed that there is no mention of a Theological Faculty, and, as a matter of fact, the University of Yurief (Dorpat) is unique among Russian universities in possessing such a faculty. A fully equipped medical faculty contains the following twenty-three chairs:—(1) Anatomy; (2) Physiology; (3) Histology and Embryology; (4) Medical Chemistry; (5) Pharmacognosy and Pharmacy; (6) Pharmacology, with prescription-writing, toxicology, and instruction in the use of mineral waters; (7) General Pathology; (8) Pathological Anatomy; (9) Medical Diagnosis; (10) Special Pathology and Therapeutics; (11) Nervous and Mental Diseases; (12) Dermatology and Syphilology;

\* The fifteen districts are those of St. Petersburg, Moscow, Kazan, Orenburg, Kharkof, Odessa, Vilna, Warsaw, Riga, the Caucasus, Turkestan, Eastern Siberia, Western Siberia, and the Amur.



(13) Therapeutic Faculty Clinique ; (14) Therapeutic Hospital Clinique\* ; (15) Operative Surgery with Topographical Anatomy ; (16) Surgical Pathology with Desmurgy† and instruction upon Dislocations and Fractures ; (17) Surgical Faculty Clinique ; (18) Surgical Hospital Clinique ; (19) Ophthalmology, with Clinique ; (20) Midwifery, Gynæcology, and Diseases of Children, with Cliniques ; (21) Medical Jurisprudence ; (22) Hygiene, with Epidemiology, Medical Police, Medical Statistics, Epizootology, and Veterinary Police ; and (23) History and Encyclopædia of Medicine.

There are two kinds of professors in a Russian university, the ordinary and the extraordinary (*ordinarnui* and *extra-ordinarnui*). The distinction between them may be made clear by stating that the ordinary professor takes a higher rank than the extraordinary, being entitled to a position in the fifth class, or *techin*, in the system of ranks already briefly explained in Section VII. ; while the extraordinary only ranks in the sixth class. The former also receives a higher stipend than the latter, the sums being respectively 3000 roubles and 2000 roubles per annum. In the University of Tomsk, in Siberia, these stipends are increased by one-half in consequence of the isolation and other disadvantages of an appointment in that distant city. There is another class of professors to whom allusion must be made ; these are the so-called supernumerary (*sverkhshtatnui*) professors—i.e., those who are not on the *shtat* or list of professors proper. They may be either ordinary or extraordinary, and are either teachers raised to the rank of professor before a vacant chair offers itself for occupation, or professors who, having served for thirty years, are placed on the retired list, although they continue to deliver lectures. In addition to the professors there are an indefinite number of *privat docents* in a Russian university. The system, as well as the name, has been borrowed from Germany.

The number of students is not limited. Moreover, it is worth noticing that the number of medical students never has been limited. Even in the stormy period of 1848, when the revolutionary wave which swept over Europe was repeated in the serious student disorders in some of the Russian universities, and when the Emperor Nicholas I. limited the number of students to be admitted to each university to the comparatively low figure of 300, the medical faculties were expressly exempted from any such limitation. For admission to the universities now a student has to present a certificate of proficiency from one of the Government *gymnasias*, or high schools, or from some other school recognised as equivalent by the Minister of Education. Students are allowed to enter only at one period of the year, on or before Aug. 20th (old style), that

\* The distinction between a "Faculty Clinique" and a "Hospital Clinique," whether Therapeutic (i.e. Medical) or Surgical, is briefly as follows. The first is endowed and supported by the University, and the second usually belongs to the town or city authorities and is only subsidised by the university. The Faculty Clinique is attended by students in their fourth year ; in it every thing is carried out, as far as possible, in an ideally scientific manner—there is no haste, and students can study selected cases at their leisure. The Hospital Clinique, on the other hand, is attended by fifth-year students, and it is conducted on the lines of an ordinary hospital ; the cases are not selected, and men are enabled to learn here the practical working of a large hospital, and to get accustomed to the rapidity of diagnosis and judgment necessary in a large general practice.

† The word "Desmurgia" includes what may be summed up as practical minor surgery and bandaging.

being the day on which the autumn session or half-year begins. There are two sessions in the year, from Aug. 20th to Dec. 20th, and from Jan. 15th to May 30th. The vacations are consequently of rather less than a month's duration at Christmas, and of nearly three months' duration in the summer. The entering student or freshman must be at once inscribed in one or other of the four faculties. The fees are not large; each student pays a sum of 5 roubles (about half a guinea) each half-year, and an additional sum of 1 rouble for each weekly lecture he arranges to attend—that is to say, that if, for example, he arranges to attend eighteen, twenty-four, or thirty lectures in the week, he will pay 18, 24, or 30 roubles for that half-year.

The full list of medical degrees obtainable at a Russian university is a long one, including, as it does, not only the two ordinary medical degrees, a lower and a higher, found in almost all universities in other countries, but certain other degrees in addition connected with the public services, and qualifying those who obtain them to hold some of the appointments described in an earlier chapter. The degrees are consequently divided into three groups, called respectively the learned-practical (*utcheno prakticheski*), learned-official (*utcheno sluzhebnyi*), and special-practical (*spetsialno-prakticheski*) groups of degrees. In the first group, the learned-practical, there are three degrees—namely, in ascending order of value, those of (a) *lékar*, or practitioner; (b) doctor of medicine; and (c) doctor of medicine and surgery. In the second group, the learned-official, there are also three degrees, those of (a) district medical officer (*uyezdnyi vrach*, whose functions were defined in an earlier chapter); (b) medical member (accoucheur or operator) of a *zemstvo* medical board; and (c) medical inspector to a *zemstvo* medical board (*inspektor vrachebnoi upravui*). In the third group, the special-practical, are the degrees of (a) dental surgeon (*zabnoi vrach*); (b) dentist (*dantist*); and (c) midwife (*povalnain babka*). It may here be added that all chemists and druggists, and only veterinary surgeons, are compelled to obtain a diploma by examination conducted in a university before being allowed to practise their calling. Of these many degrees much might be written, but it will suffice here to summarise the requirements of the universities for two most important degrees, those of *lékar* and Doctor of Medicine, only adding a few condensed notes on the method of conferring the other degrees.

The degree or title of *lékar* is the lowest degree entitling the holder to practise. The curriculum required for it extends over five years, or ten sessions, during which the student must attend lectures in all the subjects in which he is going to be examined at the end of that period. There are class-examinations each session, and, in addition, at the end of his fifth session that student has to pass the so-called “half course” (*polu-kursovui*) examination before he can continue his curriculum. At the end of the five years the student presents himself for examination for the degree of *lékar*. He must hand in the following certificates:—(a) of attendance at the university for ten sessions; of (b) of good behaviour from the university inspector of students; (c) of having passed his half-course examination, with any remarks of the examiners; and (d) detailed certificates from each professor as to the work done by the candidate since the “half-course” examination, countersigned by the dean or secretary of the medical faculty. In addition, the candidate must send in his photograph and the sum of twenty roubles (about two guineas), the examination fee. It

will be noticed that in this way the examiners are enabled to gain a very good idea of what sort of work the candidate has done as student, and this may have some influence on the result of the examination.

The examination is conducted by a Government examining committee or board (*ispitatelnaiia komissia*) annually appointed by the Minister of Education. The board consists of five members and a president. The subjects of examination are divided into five groups, corresponding to the five members of the board, each of whom appoints the examiners in his particular group. The examiners so appointed may be selected from the professors and *privat-docents* of the same university in which the examination is to take place, or from eminent men, specialists in the particular subject, from elsewhere. In the latter case the choice must be confirmed by the minister of Education. The following are the five groups and the division of subjects between them:—

*First Group:* (a) Descriptive Anatomy; (b) Histology; (c) Pathological and Anatomy and Pathological Histology; and (d) Operative Surgery Topographical Anatomy.

*Second Group:* (a) Physiology; (b) General Pathology; (c) Medical Chemistry; (d) Pharmacology, Prescription Writing, and Mineral Waters; and (e) Pharmacy and Pharmacognosy.

*Third Group:* (a) Special Pathology and Therapeutics; (b) Nervous and Mental Diseases; (c) Diseases of the Skin and Syphilis; (d) Diseases of Children; (e) Clinical Examination in the Medical Wards; and (f) Clinical Examination in the Skin and Syphilitic or in the Children's Wards.

*Fourth Group:* (a) Surgical Pathology, with Desmurgy and Treatment of Dislocations and Fractures; (b) Ophthalmology; (c) Midwifery and Gynæcology; (d) Clinical Surgery; and (e) Clinical Ophthalmology and Midwifery.

*Fifth Group:* (a) Hygiene and Medical Police; (b) Legal Medicine and Toxicology; (c) Epizootology and Veterinary Police.

The Examination in all these subjects is entirely of a *viva-voce* or practical character. There are no written examinations in any subject as with us in England. The principal question asked the candidate is drawn by the candidate himself from a balloting-urn, in which are placed a number of slips of paper with questions written on them. The first question drawn may be refused but there is only a second chance, and the second question drawn must be answered by a candidate who has declined the first. In addition to the principal question the examiners have the right to ask any other reasonable question within the limits of the particular subject. The examiners classify the result in each case as either "unsatisfactory," "satisfactory," or "very satisfactory." Two "unsatisfactories" are sufficient to stop any further examination and "plough" the candidate. For honours, or, as it is called, *lekar s'otlitchiem* (or *cum eximia laude*), it is necessary to obtain at least eleven "very satisfactories" out of the twenty-three subjects, and not one "unsatisfactory." Should the candidate fail he may come up again after two sessions, and should he fail a second time he may try a third time; but this is his last chance, as under no circumstances may he be examined a fourth time. There is no minimum age-limit mentioned in connexion with the degree of *lekar*. Practically, however, as most boys leave the *gymnasia* about the age of eighteen, and as the curriculum extends over five years, degree is usually taken at the age of twenty-three.

Having obtained the degree of *lékar* the graduate may at once proceed, if he wishes, to obtain the higher degree of Doctor of Medicine. The degree is still one of the "learned-practical" degree; but should the new regulations, which have for some time been under the consideration of the authorities, come into force, it will be raised a step higher and become a purely "learned" *utchenui* degree. To obtain it under the present regulations it is necessary to have the lower qualification of *lekar*, to pass a written examination, and to present and defend a dissertation. The written examination consists of a paper containing two questions only. When this is satisfactorily passed the candidate may submit his dissertation to the approval of the faculty, and when that is gained he must print not less than 500 copies and lodge them with the university authorities. This is done at the candidate's own expense, and should the dissertation be of any length the expense is sometimes considerable. There is even some talk of increasing the number of copies required, at least in the Army Medical Academy in St. Petersburg (where 500 complete copies and 300 abstracts of the dissertation are now demanded) as the list of foreign and Russian universities and medical institutions to which copies of each dissertation are sent is an ever-increasing one. Appended to the dissertation must be a certain number of definite propositions or conclusions (*theses*), of which six at least must be purely medical in character. The public defence of the theses takes place at meeting which is duly advertised, and which is freely open to the general public. Not only members of the university, but anyone present, may rise and controvert the statements or views of the candidate. As a rule, however, the three official "objectors" (*vozrazhatelui*) appointed by the faculty are the sole speakers on these occasions. The result is announced immediately, and if the verdict is satisfactory the "faculty oath" is read and signed, and the candidate, now a candidate no longer, is an accepted Doctor of Medicine. In the rare case of rejection of a dissertation the candidate may come up again after an interval of not less than three or more than six months to defend either the same dissertation a second time or a newly written one.

Should the proposed new regulations for obtaining the doctorate become law considerable changes will be introduced into the method just described. Three years will have to elapse from the time the candidate has obtained the degree of *lekar* before he will be permitted to present himself for the higher one. He will then have to pass a fresh searching examination in all the subjects required for the lower degree, and this examination will be specially directed towards some one special branch of medical science chosen by the candidate. There are seventeen such branches of specialism named, but it is scarcely necessary to repeat them here. The most important point is that practically under these regulations the M.D. degree would in future be obtainable by specialists only. The dissertation would be required as now, but it would have to be presented within five years of passing the examination; failing this the examination would have to be repeated. It is still uncertain whether the new regulations as thus drafted will be ratified by the Medical Council.

The degree of Doctor of Medicine and Surgery is, as a matter of fact, very rarely taken. It is obtained in the same way as that of Doctor of Medicine, but the examination in surgery, theoretical and practical, is especially searching.

The conditions for obtaining the "learned-official" (*utcheno-sluzhebnyi* degree) are adapted in each case to the special kind of knowledge which the holder

of the degree will be likely to require in the particular office which the degree will entitle him to fill. Thus, for example, a candidate for the title of "district medical officer" (*uyezdnoi vratch. vide Chapter VIII.*) must have one of the ordinary medical degrees already described, and must pass a special examination in legal medicine, medical police, first aid, epizootology, and in the duties and social relations of a district medical officer. A candidate for the degree of "operator" or "accoucheur" to a *zemstvo* medical board must have the degree of *uyezdnoi vratch*, and must pass an examination in surgery or midwifery, as the case may be. An inspector of medical board (*inspektor vratchebnoi upravui*) must have the degree of M.D., and have been in the public service for at least six years, and he must pass a very wide examination, not only in the special subjects just named as needed for the title of district medical officer, but also in medical law, State medicine, and medical administration, veterinary police, and pharmacognosey.

Of the "special-practical" (*spetsialno-prakticheski*) degrees little need be said here. A "dentist" (*dantist*) and a "dental surgeon" (*zubnoi vratch*) must pass a university examination before being permitted to practice. It may also interest many readers, particularly those who approve of a proposed Bill which has been the subject of much recent agitation in the medical world in England to know that in Russia a midwife (*povivalnaya babka*) must be properly trained and pass an examination before she can follow her calling, and that this examination is conducted in the universities.

Before closing this account of the medical degrees conferred by Russian universities it is necessary to add that in Russia all druggists are by law compelled to pass an examination as to their fitness for such an occupation. There are three titles, those of "apothecary's assistant," "provisor," and "master of pharmacy" or "*aptekar*." An "apothecary's assistant" must have been a pupil for not less than three, or more than five, years in a recognised druggist's shop not in a village, and must pass an examination. A "provisor" must have had the lower title for three years, must have attended courses of lectures on mineralogy, botany, zoology, chemistry, physics and pharmacology, &c., and must pass a written examination in these subjects. A "master of pharmacy" must first have obtained the title of provisor, and must pass a still wider examination in the subjects just named, and he must also present and defend a dissertation with at least six *theses*. The examination is largely practical and includes chemical and medico-legal analyses. For veterinary surgeons there are also three titles of ascending value, those of "veterinary assistant," "veterinarian" (*veterinar*), and "master of veterinary science."—*Lancet*, Aug. 7, 1897.

## ON PNEUMO-GASTRIC PARESIS.

By D. DYCE BROWN, M.A., M.D.,

*Consulting Physician to the London Homœopathic Hospital.*

In a Society like the present I do not propose to waste your time by describing the relations and actions of the pneumo-gastric nerve. Its relations to the brain, stomach, heart and lungs afford the key to the effects of paresis of the nerve, and of these the quickening of the pulse is one of the most marked features, its inhibitory action on the heart being more or less

in abeyance. This may be shown only in a more or less developed state in what is known as tachycardia, a state that may be only functional and curable, and by few other marked symptoms. But the paresis may also be deep-seated, probably at the origin of the nerve, and then the state of matters is a grave one, usually ending fatally. What the exact nature of this lesion is, is not precisely known, but probably it is of the nature of softening, and cases are not sufficiently frequent to permit of more than a surmise as yet. The class of cases to which I will draw attention to-night have not been described elsewhere, as far as I am aware.

They are caused by (1) long-continued and severe over-strain of the brain and the nervous power; (2) by some severe shock to the nervous system; (3) by some poison such as influenza, which specially attacks the nervous system and the nerve centres.

The symptoms are first those of nervous exhaustion. The patient feels unfit for work, sleep becomes very broken, the heart beats quickly, and perhaps irregularly, a sense of oppression is felt in the cardiac region, the spirits become depressed, with a sense of great languor. Then the breathing becomes uneasy and difficult, he cannot lie down on an ordinary height of pillow; the appetite goes, and nausea or vomiting of food ensues. Cough then follows, developing into bronchial catarrh with expectoration and mucous rales at the bases, followed by pneumonia of low or hypostatic type. The heart is found to be beating either rapidly or irregularly, or both, though there may be no valvular lesion. The inability to take food, with vomiting, increases, sleep gets more and more difficult, with wandering at night; the brain then becomes confused, the breathing more difficult. Then albumen appears in the urine, the legs become œdematous, and the œdema spreads steadily upwards, and the liver becomes engorged. Towards the end the breathing partakes of the Cheyne-Stokes type, and the patient sinks from exhaustion or from cardiac failure, or from erysipelas affecting the lower limbs. Usually there is a period of unconsciousness or semi-consciousness before the end arrives. The temperature at first is normal, but when the lung, brain and kidney symptoms develop, it rises more or less according to the severity of the case, and before death it is generally 101° or over, though it may fall in the morning to a certain extent. There have been no *post-mortem* examinations in any of my cases.

Having thus sketched the downward course of such cases, I shall proceed to give some cases of this disease, which illustrate the points I have named.

*Case I.*—Mr. A. B., aged 55, a gentleman of great physical strength, tall and handsome, an engineer by profession, who had built up an enormous business, and was very widely known. When I first saw him, professionally, he was suffering from a nerve-breakdown. He was devoted to his profession, and was one of those men who could not devolve duties to subordinates without practically doing them himself. The result was that his brain and physical powers were completely over-taxed, and nothing would induce him to take his business easily. He seldom cared to go for a holiday, and when he did go it was with guests, who prevented his holiday being a restful one, owing to his unfailing hospitality.

Besides his professional work he undertook directorships, and, being a Member of Parliament, the late hours at the House cut up his night's rest. This had been going on for years. When I saw him in this break-down, he was in bed, completely prostrate, could not sleep, had lost his appetite, and though there was no valvular lesion of the heart it was very irregular and rapid, and his pulse was feeble and very irregular.

It was with difficulty that I could get him to stay in bed. With insisting on perfect rest, and with suitable treatment, he got over it, and was able to go about again. But all my injunctions about taking rest and not working so hard, and going away for a time of quiet, were forgotten as soon as he was able to get about; the same old course was pursued with the result of a repetition of the nerve-collapse, and the same symptoms three or four times at no long intervals. I constantly warned him of the sure ending of continuing as he was doing, that it must result in a complete break-down, when he would be fit for nothing, and be obliged to take a very prolonged rest and absence from occupation. The heart now remained irregular and rapid, even when he was going about saying he was all right, and his sleep became bad, more or less continuously. At last, as I expected, the final collapse came. I found him, as before, with a rapid, irregular pulse, feeble, irregular and rapid action of the heart, utterly sleepless with a distaste for food, and nausea, and dull pressive headache. I hoped that I might again be able, with perfect quiet and treatment, to get him round again. But it was not to be this time, and progress was steadily downwards. Vomiting next came on, with a loathing for all food, and even for stimulants. The heart became feebler and quicker, though still without signs of valvular lesion. The breathing then became rapid and difficult, and he could not lie down on an ordinary pillow. Bronchial catarrh followed, then a low form of congestion of both lungs, with small crepitation at the bases, and much expectoration. Sleep became almost impossible. Albumen then appeared in the urine, the legs began to swell, and the œdema spread up to the thighs and to the trunk. The urine became scanty and high coloured, the liver enlarged, and finally the breathing became of the Cheyno-Stokes type, the heart getting weaker and weaker. He ceased to be able to micturate, and the catheter had to be used daily. And finally, after about six weeks' illness, fatal syncope occurred in the early morning. At the beginning of the illness there was no albumen in the urine, thus showing that it and the dropsy were only secondary to the central mischief, and to the weak irregular cardiac state. The whole illness clearly was due to primary paresis of the pneumogastric nerve, probably at its origin, which fully explained the development of all the other symptoms—the sleeplessness, the vomiting, the state of the heart, the breathing and lung congestion, and the albuminuria. As to treatment, each medicine given seemed to benefit for a short time, and then lost its effect. For the sleep, everything was tried, homœopathic and then in despair every likely allopathic remedy, with the same result, benefit for a couple of days, and then failure. The disease went steadily on in the downward course. During his illness, I had frequently the benefit of Dr. Kidd's help in consultation, and every conceivable method of benefiting him was tried. The legs had to be punctured to drain off the œdema, but even with this the relief was only partial. The clear cause of the disease was the long continued and severe strain of the brain, and of the whole nervous powers.

*Case II.*—Mrs. ———, age about 65, was in good health for her age; went to the Riviera for the winter with her daughter, remaining in England or Scotland for the rest of the year. She had been troubled for some time with noises in the ears, especially in one side, and slight deafness; but otherwise was well. Heart healthy. She had been advised by friends to try electricity for this and went to a well-known medical electrician. He applied the current at first gently, but as no result one way or another was visible, he increased the strength of the current. At the first application of this increased strength, she felt giddy and uneasy in the head, but thinking this would pass off she went out to lunch at Fulham Palace. In the midst of lunch she felt sick and faint, and had to leave the table. Her daughter took her home as soon as possible, and got her to bed. She sent for me in the evening. I found her complaining of giddiness, faintness and constant vomiting. Her pulse was very rapid and feeble, the heart's action feeble, but the temperature normal. Her breathing was not affected markedly. Next day, under treatment, the sickness had abated considerably, but she had not slept, and the heart and pulse were still rapid and feeble. But the breathing now was quick. No rise of temperature, and no lung congestion. The following day she was no better. She could hardly take any food, had sense of nausea, but only slight vomiting. Her temperature then began to rise, the breathing too became rapid, the heart and pulse remained also very rapid and feeble, and sleep was very broken and in short snatches. She had to be propped up with pillows for the breathing. Lung engorgement on both sides and bronchial catarrh now supervened, the urine became scanty, but with no albumen in it at first, and with a steady downward progress in all these symptoms, with the later appearance of albumen in the urine, and finally involuntary micturition and passage of feces, she died from heart failure 10 days after the application of the strong electric current. Dr. Kidd saw her with me, and agreed in the diagnosis. Treatment had no effect in any way, except for the primary vomiting. There could be here no doubt of the cause of the illness—the shock to the nerve-centres, and specially the pneumo-gastric, from the electricity, paralyzing it.

*Case III.*—Mr. P. L., aged 55, was an engineer by profession, and a great inventor, as was his father and grandfather. Like case I., he was devoted to his profession, worked at it with all his energy, sitting up to the early hours of the morning, after a hard day of brain work. He would sometimes, when he had an invention in his mind, sit up day and night for 18 hours at a stretch, till he could see his way through some difficult point. This had been going on for years, till he finally broke down. When I was first called to see him, he had been under allopathic treatment, and Dr. (now Sir W.) Broadbent had seen him a few days before I did. The treatment, however, was so severe, that having been homœopathic all his life, he would have no more of the old school treatment. When I saw him, he was sitting up in his chair, as he could not lie down for the breathing, which was difficult and rapid. He had much cough, from bronchial catarrh and congestion of the bases of the lungs. The heart was rapid, fast, and irregular but with no valvular lesion. He had little sleep. His tongue was dry and coated, and he had the greatest difficulty in taking his food from nausea and distaste for it. The bowels were acting only with purgatives. The urine was scanty, but free from albumen. There was extensive œdema of the lower extremities, extending up to the thighs and the lower parts of the trunk. It looked a very



hopeless case, but under treatment he began to improve. The gastric state ameliorated, the tongue cleaned, the bowels were relieved fully by enema, and he soon began to eat well. Sleep also improved, though he never could sleep long at a time. The cough and lung congestion got markedly better, and he was for a time even able to lie down on high pillows. The heart strengthened and also the pulse, but it continued rapid, and the breathing remained quick. Progress towards a better state continued slowly but gradually, and I began to have hopes that ultimately he might get about as an invalid; and I even got him out in a bath chair into the garden. This state of improvement up to a certain point continued for nearly a year, but yet the main features of the rapid breathing and heart's action persisted, with sleep only for an hour or so at a time. His lying down could not be persevered with, and he sat up day and night. The edema of the lower limbs never disappeared, though cracks in the skin permitted the free exudation of the fluid. Unfortunately, erysipelas came on, not severely, but having the effect of so weakening his remaining power, that though it seemed passing off, his strength gave way, and he sank from cardiac failure.

In this case, homœopathic treatment was of marked and prolonged benefit, and the highest dilutions always did most good, but yet the main feature of the case—the pneumo-gastric paresis—continued till he sank.

*Case IV.*—Mrs. D., aged 52. Had had a very large family, and had always been most active and energetic in her home, and in religious works, overtaxing her strength for years. When I first saw her, she complained of pain in the lower back, which was evidently spinal, and pain going down both sciatic nerves keeping her from sleep. She had been getting bad for some time before, and she felt constantly tired, and had a pale, worn-out look. Her catamenia were passing off altogether, though gradually; appetite was very poor. She had no desire for food, and often felt sick in the morning. Bowels regular, urine pale, and with no albumen. She was much depressed. Her heart was healthy, but weak, and the pulse quick. Temperature sub-normal. Under rest and treatment she improved markedly, and after going to Switzerland, came back much better. A few months after this, however, she came back to me, in the same state, weak, pale, and worn-looking; the old spinal and sciatic pain had returned. She could not sleep for it, and even when it was eased, sleep was very bad and restless. Pulse quick, breathing not affected, took food with difficulty, no albumen in urine. Bowels required enema. I ordered her to bed, and at first the rest and treatment did good, but only for a time. The symptoms steadily got worse. Sleep became more difficult, the breathing became quicker, and the pulse also. Heart's action weak. Headaches became troublesome, food more and more difficult. She began to be confused in her head, lost her memory, and wandered at night. Lung congestion followed, and albumen appeared in the urine. Strength was rapidly failing, till she could not turn in bed, or sit up without help. The brain became more and more confused, the pupils dilated, sleep almost gone, though she lay still. Unconsciousness followed, with marked rise of temperature, involuntary passage of urine and feces, Cheyne-Stokes breathing, and finally death from heart-failure, after two months' illness from the time I ordered her to bed.

*Case V.*—For the notes of this case, I am indebted to the kindness of Dr. E. A. Neatby, who called me in consultation. I read Dr. Neatby's report of the case,

and only add that when I saw this lady, the breathing was distinctly irregular, of the Cheyne-Stokes type. I formed the opinion that it was a case essentially of pneumo-gastric paresis, caused by the influenza poison, and gave a very unfavourable prognosis, which unfortunately was verified. Here also treatment seemed to have little more than temporary effect.

*Notes on Mrs. U.'s Case.*—Mrs. U., aged 64, an old sufferer from mitral incompetence, was taken ill suddenly in October last while away from home, with shivering, faintness, severe headache and general aching. When first seen by her medical man her temperature was raised about two degrees, and the pulse and respiration were slow. It was thought that the patient was suffering from the effects of influenza. For the first week or two the patient persisted in getting up part of most days, after which, however, she remained in bed. Tiredness and extreme drowsiness were two of the most marked symptoms in the early stages. Beyond the evidence of the old endocarditis no abnormal physical signs were detected. The headache gradually became less prominent or less noticed, the drowsiness increased, inability to converse connectedly came on, developing into complete incoherence; the fever varied, seldom reaching the normal line, pulse and respiration gradually quickened, the latter being always more rapid during sleep. Some weeks before the end a dry futile short cough came on, apparently due to irritation of the throat. About the same time incontinence of urine developed, with occasional want of control of the bowels; the latter, however, was rare, constipation usually being present. For about a month before her death the mouth and throat were covered with thrush; the patient was semi-comatose, with great effort recognising her own relatives, but occasionally saying a few intelligible words with much difficulty. Throughout the urine was clear, of low specific gravity and free from albumen or sugar. The fundi oculorum showed no change, and the pupils reacted to light. Towards the end slight œdema of the legs and sanguineous bulke appeared, and unhealthy sores developed on the skin. Her death took place from lung failure on February 4. At the *Post-mortem* the mitral and aortic valves were found damaged, and serous meningitis was present, but no fluid to cause pressure.

*Case VI.*—For the notes of this case I am indebted to the kindness of Dr. Goldsbrough, with whom I saw the patient in consultation.

A. McD., 44, builder, a very hard-working man, over-taxing his strength for years; accustomed to drink freely of spirits, but not to become intoxicated; had been known to have albumen in the urine for more than two years. Complaints of languor, dyspnoea on exertion, loss of appetite, nausea and sense of discomfort after any food; tongue thickly coated, liver enlarged, albumen present in urine, pulse weak, frequent, weak action of heart, restless at night. Under treatment constantly until death on August 13. *Ars., Digitalis, &c.* The gastric condition improved under treatment. In the course of a few weeks œdema of extremities ensued, with increasing loss of strength and peculiar embarrassment of respiration somewhat resembling Cheyne-Stokes breathing. The œdema was succeeded by erysipelas of lower extremities, which extended up to the thighs, accompanied by septic temperatures, sloughing of gangrenous patches of skin and cellular tissue, and exhaustion, which terminated in death.

To Dr. Goldsbrough's notes I may only add that when I saw him with Dr. Goldsbrough, his heart and pulse were markedly rapid and feeble, the breathing was uneasy and quick, and slightly, though distinctly, of the

Cheyne-Stokes type. He got very little sleep, and only of short duration at a time. The œdema of the legs was present at that time, and he felt generally prostrate. There had been vomiting, but that had been checked under treatment.

The case was clearly, to my mind, and I think Dr. Goldsbrough agreed in my view, one essentially of pneumo-gastric paresis, brought on by over-strain of his nerve-power in his business. Very probably his habit of taking stimulants freely had been induced by the state of weakness and exhaustion which he had felt coming on for some time. This would temporarily give him a fillip, and thus make the mischief which was steadily wearing him down, till he finally had to give in and take to bed.

In all these six cases the last was the only one where albumen had existed prior to the final collapse, while in the first four it supervened in the course of the illness, and so was clearly only secondary, resulting probably from the general engorgement of all the vital organs. But in all these six cases we have, as a cause, over-strain of the brain and general nerve-power, going on for years, or from, as in case V., the influenza poison, and all showing as the primary and essential feature, evidence of deep-seated diseases of the pneumo-gastric nerve, producing paresis of it.—*Journal of the British Homœopathic Society*, July, 1897.

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**RECRUDESCENCE OF THE PLAGUE IN BOMBAY;  
ANTICIPATORY MEASURES IN CALCUTTA.**

PERHAPS we are not far from the fact if we take the last week of August 1896 as the time when the germs of Plague found a congenial soil in Bombay. No notice was taken of its insidious invasion of the fair city in this month. It was about the end of the following month that the conclusion, ugly and appalling as it was, could not be resisted that the plague was actually doing havoc in the city. Dr. Viegas and Mr. Rahamuttulla have the honor of bringing this fact to the notice of the authorities, and of rousing them to a sense of their responsibility and duties. We have no actual record of the cases and deaths that occurred in this month, but the lowest estimate of the number of cases was about 400, and of deaths between 200 and 300.

Statistics of cases and deaths were kept from October from which we learn that, in this month, the number of the former was 412 and of the latter 301. In November the cases were 326 and deaths 265. In December new cases rose to 1,689 and deaths to 1,198. In January of the present year the new cases were 2,382 and deaths 1,835. In February the disease was at its maximum virulence, the number of cases being 3,172 and of deaths 3,066. In March there began a marked decline, the cases being 1,495 and deaths 1,266. In April the number of cases was less than in the previous month, being 1,413, but the deaths were greater, being 1,277. In May the cases came down to 448 and deaths to 328. In June the cases were still less, being 184 and deaths 97. In July the disease was at its minimum virulence the number of cases being only 59 and deaths 43. Hopes were entertained that the



epidemic would gradually disappear, but these hopes were doomed to disappointment as the number of cases as well as of deaths began to rise from August, during which the former was 105 and the latter 66. In the present month the numbers are 185 and 151 respectively.

It would appear that Karachi, to which the plague was first carried by importation from Bombay, and which suffered severely from it till May last, has got rid of it. At least, we have not heard of any cases there since the middle of June. But it is otherwise with Poona. The tale from this unfortunate city is as sad as it is from Bombay. After reaching its maximum in March the epidemic began to decline from April, it nearly disappeared in June and July, but has made its unwelcome reappearance from August, and in the present month the number of its victims has become so appallingly great as to give rise to the most serious anxiety to the inhabitants and the authorities.

It is sad to contemplate that notwithstanding the most stringent measures to prevent it, the plague should, after an apparent lull, show signs of renewed virulence in Bombay and Poona, and especially in the latter city and its environs. We are almost tempted to suspect there must have been something faulty, some serious hitch, in the measures themselves which prevented their being fully carried out, or which led people to the concealment of cases. We are glad to see the Governor of Bombay is not disinclined to profit by past experience, and that, in taking the people themselves, who are the parties most concerned, into his confidence, Lord Sandhurst is acting wisely, and His Excellency's efforts will, we hope, now be crowned with success. We only wish that he could dispense with the soldier element altogether from the composition of "Search Parties."

The recrudescence of the plague in the Western Presidency has naturally filled all India, specially Bengal and the Metropolis, with alarm and anxiety. Our first efforts should be directed towards preventing the importation of the disease. For once imported it would find a fertile soil for its rapid growth and development in every town and village. And once it is in Calcutta, it is doubtful if it will leave it unless the city is built anew on strict sanitary principles. The presence of the disease in Calcutta would not only mean the extinction of its trade, but its almost total annihilation, and the ruin of India, for a long time to come. This is not a picture which we have drawn from the imagination. It is but a reflection of the pictures which the plague presented wherever and whenever it has been able to get a foot-hold. It would be well and wise if we do not forget the lessons of the past, and take advantage of the positive teachings of Science.

To be able to prevent its introduction and spread we ought to

know the essential nature and characteristics of the disease. Terrible as its devastations are, it ought to be a comfort to know that it is an absolutely preventible, because it is essentially a contagious disease which spreads by human intercourse, almost from person to person. The vitality of its germs and the durability of their generating toxins do not appear to be very great, as they are easily destroyed by abundance of air; which shows that the area of their influence is very limited, and therefore easily controlled if we know how to do it. Its persistence and spread must be due to our own fault, of which ignorance is the chief factor.

The publication by Dr. Dyson, the Sanitary Commissioner of Bengal, and Dr. Calvert, the Inspecting Medical Officer, at Khana Junction, Burdwan, of a pretty exhaustive "Report on the Plague in Bombay and the measures taken to suppress it," is very opportune at the present moment. We have given extracts from it under our *Gleanings* to give our readers an idea of the disease itself. We propose discussing here the means which the authors suggest for the prevention of the introduction of the Plague into Bengal, and for its suppression if unhappily it finds its way here.

The plague cannot be introduced into Bengal except from the places now infected by it. The chief of these are Bombay and Poona. The only means, therefore, of averting the disease is by strict vigilance over persons suffering from it or carrying its germs, and preventing them from coming over to this part of the country, that is, by relentless quarantine. The first system of quarantine must be established at the railway stations whence the exodus from Bombay and Poona can take place; and then there must be inspection at stations where railways from Bombay and Poona meet our frontier. We are strongly of opinion that inspection only at Khana in Burdwan, in the very heart of Bengal as it were, is not enough and safe. We ought to have inspection stations on the Bengal Nagpur Railway beyond Assensole and on the East Indian Railway beyond Luckisera.

The authors do not entertain much hope from quarantine. "Human intercourse," they say, "being the chief factor in the spread of the disease, it follows that with an incubation of eight days (ten days Venice Conference), no system of land quarantine

can be completely effective in India with its present facilities of rapid communication. Its establishment will no doubt lessen the danger, the more marked cases being detected ; but cases in the state of early incubation will slip through, and the nearer the epidemic approaches any city or area it is desired to protect, the greater that danger becomes, and the more likely is infection to occur." Speaking of the quarantine arrangements at the various inspection stations in Bengal, they say that "it is true the regulations might be increased in severity, but unfortunately such a measure would defeat its own object, since the more stringent and irksome the regulations are made, the greater is the ingenuity displayed in evading them. Nothing short of the suspension of the railway communication would be effective—a measure of such severity that it is doubtful if it could be carried out." We do not think such a severe measure is necessary. The multiplication of Inspection stations suggested above would be enough to minimize the evil.

Notwithstanding our utmost precautions, we may have in our midst the unwelcome visitor. "What, then, under the circumstances, is to be done?" is the question which the authors and every body with them anxiously ask, and must endeavour to answer in the light of past experience, and with the help of research which has been brought to bear upon the subject. If we cannot absolutely prevent its introduction, we must try to prevent the spread of the disease. The authors fully recognize the impossibility of remedying in a few months the insanitary state of things prevailing in Calcutta "produced by the neglect of years." There is no time to waste idle words as to how this neglect of years has come on. It is all very well and easy to charge the appointed guardians of the health of the city with this neglect, and to ask them to work the miracle of an ideal which has never yet been wrought in any part of the world. A sound statesmanship would accept the evil as it is and devise means to counteract its evil consequences as much as possible. Hence the necessity, the authors wisely counsel, "to exercise a careful watch in Calcutta, at all events for early cases, and by prompt measures of isolation, segregation and disinfection to prevent an epidemic outbreak, that is, so long as the disease does not get a footing in the Province of Bengal."

We are in perfect accord with the authors as to the absolute necessity of isolation and segregation as the only effective safeguards against the spread of the disease in filthy and congested areas of crowded cities. We must be ready with isolation hospitals and segregation camps for actual and suspected cases. We are, however, of opinion that these hospitals and camps are needful only for those, and they form the largest majority, whose homes or residences cannot possibly admit of isolation and segregation. But, we maintain, as we did at the Conference held at the Bengal Council Chamber on the 2nd Inst., that there are houses where these requirements of science are not only possible but may in many cases be better provided for than in extemporized hospitals and camps. On the roofs of most houses sheds may be erected where patients and suspects would fare better than in sheds built on the damp ground. The air, which is almost the only saving thing for plague patients, would be purer and more abundant on high roofs than on the ground. Besides, those accustomed to live in two or three storied houses are not likely to improve in a low, damp atmosphere. These are considerations of science and not of sentiment. And where science and sentiment are at one, we must take care that, in our over zeal to serve the one, we do not needlessly and ruthlessly trample upon the other. But there is an additional reason why sentiment must be respected. For if it is known that the destination of the plague-stricken, however well-housed and conditioned, is an isolation hospital away from home and from all its soothing and endearing influences which, to the oriental mind, are for more efficacious than all the drugging and disinfection in the world, then there would instantly rise up in the breast of the community an irresistible desire to conceal cases which would lead to most disastrous consequences. But let the people have the assurance that they will not needlessly be torn away from their families, then the whole community will loyally assist the authorities in carrying out the injunctions of science. We hope the blunders of the Western Presidency will not be repeated in Bengal, giving rise to horrors and catastrophes worse than the plague itself.

## REVIEWS.

*The Homœopathic Therapeutics of Diarrhœa, Dysentery, Cholera, Cholera Morbus, Cholera Infantum, and all other Loose Evacuations of the Bowels.* By James B. Bell, M.D. Fourth Edition. Boericke and Tafel. Philadelphia, 1897.

The *Materia Medica* is the foundation of the therapeutics of all schools of medicine. The *materia medica* of the new school differs considerably, we may say essentially, from that of the old school. In the old school it is enough to know that a drug is an astringent, a purgative, a diuretic, a narcotic, and so on. In the new school each and every symptom produced by a drug in man in a state of health is of value, and must be borne in mind when applying it in a case of disease. Indeed, the law of similars requires not only that a drug to be remedial in a particular case of disease, must be one which has not only produced the particular pathological condition of a patient, but which has also produced symptoms both objective and subjective similar to those presented by him. It is these latter which determine the choice of the drug. These are so numerous for each drug, comprising the various morbid changes of structure and function which are partly observable by the physician but which are chiefly felt and experienced by the patient only, that it is not possible for the most capacious and retentive memory to hold them all. Hence the necessity of aids by which they may be picked out at a moment's notice. This necessity has given rise to what are called *repertories*, where symptoms are classified under heads or rubrics which render reference easy.

The exigencies of practice have necessitated the compilation of special in addition to general repertories, the former being devoted to symptoms of particular organs or groups of organs, as the respiratory, the alimentary, the urinary, the reproductive, and so on. It is true that we have to treat the whole patient and not the name of a disease, that we have to individualize to the utmost taking note of all his symptoms, and not confine ourselves to a few prominent symptoms, yet it is a fact that in actual practice we are confronted first of all by the prominent symptoms which are referrible to a particular organ or organs which have been the starting point of the disease from which the patient is suffering, or in which the disease has localized itself. Hence

it is useful to first take note of these prominent symptoms, and then, having got before us the drugs which produce them, to go on with the process of elimination till we fix upon one as the one which covers all the symptoms.

The special repertories, it will thus be seen, serve no other purpose than that of economy of time. They cannot enable us to dispense with general repertories. Indeed, the use of both must be combined for the successful treatment of our cases. But as general repertories are too bulky to carry, the compilers of special repertories have seen the necessity of adding to the symptoms of drugs referrible to particular organs or systems of organs, as many other symptoms produced by the drugs as are deemed likely to be met with produced by those drugs under the name of *General or Concomitant symptoms*. It was from considerations such as these that our first special, Boenninghausen's Cough, Intermittent Fever, and Head, repertories were produced; and others, of whom the author of the little book under review is one, have followed his example. Dr. H. C. Allen who, in the first edition of his *Therapeutics of Intermittent Fever*, gave only the symptoms of fever under each drug, has, in the second edition, "added some leading characteristics of each remedy," and thus considerably enhanced the value of his work.

It is fair to add that these books, of which one is under review, though properly speaking they are but repertories, differ from mere repertories in that they aim at something higher. Professing to treat of the therapeutics of particular diseases, or rather of diseases of particular organs, they first give in alphabetical arrangement those drugs which been known to pathogenetically affect those organs, with the symptoms peculiar to each referrible to those organs, then the general symptoms, that is symptoms produced by them in other organs and parts of the organism, and then as an appendix the repertory proper. Thus, without being so, they aim at taking the place of systematic treatises.

That the books of the character described above do supply a want keenly felt, is evidenced by the fact of the few that have already appeared commanding a large sale. And we are almost tempted to endorse the desire expressed by Dr. Bell "that the work (of such compilation) go on until we possess such special aids in the treatment of all affections that tax the busy practitioner."

It must no doubt be gratifying to the author to see that, in thirty years, his book has run into four editions, and has not yet been superseded. In the preface to the first edition published in 1869, Dr. Bell said—"the carefully collated experience of ten active years, which it contains, would indeed be better if they were twenty or thirty, but perhaps the Lord in his goodness will permit this to be added also." We are happy to see that the Lord has heard this prayer of the earnest physician, and we have, accordingly in this fourth edition, the mature experience of thirty years. "

The greatest changes were made in the second edition brought out in 1881, with the co-operation of Dr. W. T. Laird. In this edition there were over 100 pages more than in the first, thirty-two new remedies were added and the old ones thoroughly revised, and, in some instances, entirely re-written. In the third edition brought out by the author himself in 1888, but few changes were made, the most noticeable being the change of size from duodecimo to octavo, the omission of *Cactus*, *Euphorbium*, *Opuntia*, and *Castoreum* as of little importance, and the inclusion of *Acetic acid*, *Crotalus*, *Angustura*, *Carbolic acid*, and *Valeriana* as of much value.

The only change that we observe in the fourth edition is revision to the original, more convenient, duodecimo size of the book. The text does not appear to us to have been materially touched for we find that even the typographical errors of the third edition have not been corrected. Thus, in the article *Magnesia Carbonica*, the first sentence under *Remarks* remains in the fourth as it was in the third edition—"Much of the ground which should have been occupied by *Magn. Carb.* has heretofore been given to *Colc.* and *Merc.*" Now *Colc.* in this sentence may stand for *Colchicum* or *Colocynth*, and it is by a reference to the second edition that we find that it stands for the latter. Again wherever the word tympanites occurs it is always mis-spelt tympanitis, as in former editions. We do not know if this is the American way of spelling the word. If it is, it is certainly wrong as it does not signify inflammation but a drum-like condition of the abdomen from its distension with gas. Tympanitis would properly mean inflammation of the membrana tympani of the ear.

The remarks under *Hippomane mancinella* are allowed to remain

exactly as they were in the third edition. It did not strike the author that if the age of the drug was thirty-four years in 1888, it could not be the same in 1896. The author has made the following addition to the remarks under *Hydrophobin*: "It has been found useful in chronic cramp diarrhœa." We are at a loss to make out what the author means by *cramp* diarrhœa. We do not think he means diarrhœa with cramps, for the symptom is not given with the stools nor as an accompaniment. Does he mean *CAMP* diarrhœa? In a thoroughly revised edition he should have been more explicit.

From such close comparison that we instituted with the third edition, we are led to conclude that this fourth edition is almost a reprint of the last. The author himself virtually admits this when he says in the preface "that a thorough revision, and revision and a renewed comparison with all the *Materia Medica* now available, reveals but few changes to make, and no remedies to add or to omit." We have no right to question the accuracy of this statement, but we cannot help remarking that the revision must have been strangely "thorough" that could overlook the errors we have pointed out above.

In justification of his having made but few changes he has added: "ALLEN'S SYMPTOM REGISTER gives four hundred and twenty-five remedies as having diarrhœa, and KNER'S REPERTORY of the GUIDING SYMPTOMS a much smaller list, but none of them, not included in this book, are suited for a place in it, either because the proving is indefinite, or because the diarrhœa is simply accessory to a large and more important group of symptoms (as in *Diadema* in Intermittent fever, or *Asterias rubens* in Epilepsy, or *Arum triphyllum* in Typhoid or Scarlet fever) and is not particularly well defined in itself. It would seem, therefore," he goes on to say with pride, "that this little work is now as complete as it can well be made, for at least some time to come." In further justification the author concludes the preface with the observation: "Homœopathy is not making that kind of 'progress' that renders a whole medical library obsolete every ten years, but instead of that, is all the time laying up in its store house treasures new and old."

We are quite at one with the author in this last observation,



and it is this which makes us wonder that in ten years he should not have been able to gather some new treasures for our store-house. To take at random a few remedies we may mention *Euphorbia amygdaloides*, *Euphorbia corollata*, *Kali cyanatus*, *Kali iodum*, *Ricinus*, *Juglans cinerea*, &c., as likely to deserve a place in that store-house. When he could still retain *Colostrum*, the symptoms of which, as he himself tells us, "are purely clinical, and like those of all other remedies, which claim recognition solely upon the basis of empiricism, must be regarded with distrust," to exclude the ones we have mentioned, is to disregard their claims both pathogenetic and clinical.

As this is the first time we have the opportunity of reviewing Dr. Bell's work we are glad to be able to tell our readers that we are in entire accord with him as regards the principles which he adopts in the selection of the remedy. They are those which Hahnemann inculcated, and which every homœopathic practitioner ought to follow. We believe that a general pathological similitude is not enough to meet the demands of homœopathy. To this similitude must be added the further similitude furnished by conditions of aggravation and amelioration, and by the general or concomitant symptoms. Indeed, as Dr. Bell has truly observed, "the individualizing symptoms possess the greater value, and are indispensable to a certain selection," that they "are of all kinds and qualities, from the most purely objective and pathological, to the most subjective and delicate complaints which the organism is capable of uttering," "and that they often require a patience and acuteness of observation hardly excelled by astronomers, microscopists and other followers of natural science."

Not unoften from the imperfection of the materia medica it happens that a remedy presents all the peculiar and individualizing symptoms of a particular case but has not been known to produce the particular pathological state from which the patient is suffering. What are we to do in such a case? "The answer is," says Dr. Bell, "that we may rightly infer that the remedy does possess also the general and organic symptoms of the case, and that it will remove them, together with the distinguishing symptoms." We must say that our experience is in perfect harmony with Dr. Bell's, and has been justified by actual discoveries. For "thus has our Materia Medica been enriched by

at least one-fourth of the most positive and valuable pathological symptoms which we possess. Thus, for example, have we learned that *Bry.*, *Ars.*, *Rhus*, *Bap.*, etc., have ulceration of Peyer's glands in their pathogenesis; that *Hep.*, *Lach.*, and *Lyc.* produce pseudo-membranous exudation; that *Spöng.* causes and cures plastic endo-carditis; or that (and a fact now published for the first time and obtained purely by observing the characteristic symptoms) *Puls.* and *Sep.* are known to cause and cure trachoma or glandular conjunctivitis."

We know that there are many who sneer at this method of drug selection, and the author had been given the title of Podophyllum Bell, "because he had observed the power of *Podophyllum* to cure true pneumonia when selected by some characteristic symptoms although it has never been known to produce that condition." Analogies are often misleading and fallacious, but we think that the analogy he has drawn between such methods in therapeutics and the method of spectrum analysis in chemistry is quite appropriate. The chemist, he rightly tells us, "from the yellow band in the spectrum is able to assert that there is sodium in the sun, or from the lines in the spectrum of the Dürkheim spring-water is able to declare that a new metal is there. He does not hesitate to attribute form, weight, malleability, and other metallic properties to the stranger, long before he is able to possess himself of a little bar of indium."

Though, as we have been, this fourth edition of Dr. Bell's book has not been as thoroughly revised as we could have wished, yet we must observe that, even as it is, it is really the most complete work on the subject of loose evacuations of the bowels that we have. It has stood the test of time and is reliable. We trust that in the next edition the author will see that if he cannot omit anything he will be able to add many new treasures which pathogenesis and clinical experience have revealed.

*A Repertory to the Cyclopædia of Drug Pathogenesis.* Compiled by RICHARD HUGHES, M.D. Part I. Introduction—Nervous System—Head. E. Gould and Son, London ; Boericke and Tafel, New York. 1897.

The *Cyclopædia of Drug Pathogenesis* will now cease to be an unread and unreadable book. The dreary monotony of its pages, unrelieved by oases of bold type, was repulsive even to the earnest student anxious to know a proving, or a poisoning, or an experiment on animals, in its entirety disclosing the symptoms as they occurred in their chronological order. To wade through the veritable sahara which the book presents is not only trying to the eyes but is maddening to the mind. It was a mistake to have printed large portions of it in such small type with long almost trackless paragraphs. No wonder that to the great annoyance of the editors, especially of Dr. Hughes, the work, compiled with such care and industry, should have been so undeservedly unpopular. But human nature is human nature, as a general rule is idle and ease-loving, and not willing to take unusual trouble or make unusual sacrifices even at the call of duty. Hence the homœopathic practitioner, who should have welcomed the *Cyclopædia*, turned away from it and had recourse to books which seemed to save him time and labor in mastering the *materia medica*.

Now that the long-promised and much-expected Repertory is being supplied, we trust the interest in the book will revive as it deserves to be, and the edition will soon be exhausted so that with better funds and resources and with extended experience the work may be printed in a more alluring form. The additional expenditure that this will entail will be economy in the long run. If Allen's *Encyclopædia* could command such a large sale, the *Cyclopædia of Drug Pathogenesis* with the Repertory would, we are sure, command an equal if not a more extensive sale.

The necessity of an *Index Symptomatum* to the *Cyclopædia* was felt when the work was taken in hand in 1884, but it could not be begun before the work itself was completed, which was done in 1891. The plan of the Index was submitted by Dr. Hughes before the British Homœopathic Congress in 1890 and before the International Homœopathic Congress at Atlantic City, U.S.A., in 1891. The result of the discussions at both these

meetings has been the matured plan on which the Index or Repertory is now being worked out. We will give the plan as nearly in Dr. Hughes' words as possible.

Our readers are aware, and the readers of the *Cyclopædia* certainly know, "that it does not contain the pathogeneses of Hahnemann himself." Strange as it may appear the reasons for this omission are not altogether unreasonable. "In accordance," we are told by Dr. Hughes, "with the constant aim of the '*Cyclopædia*' to bring students of the *Materia Medica* into contact with original records and nascent drug-action, the symptom-lists of the Master have not been transplanted, but have been referred to under each drug to which they belong in their place in the *Fragmenta de Viribus*, the *Materia Medica Pura*, and the *Chronic Diseases*, as the case may be." "Nevertheless," we are told, "though only referred to, Hahnemann's Catalogues form an integral part of every pathogenesis to which they pertain, and the special matter of the '*Cyclopædia*' is avowedly supplementary thereto."

It is a relief, therefore, to find that Dr. Hughes has wisely decided that the Repertory to the *Cyclopædia* should be based not only upon symptoms recorded therein, but also upon symptoms contained in the three works of Hahnemann mentioned above, with a reservation, however, which would not please the so-called pure Hahnemannians, and even those who, while admitting all that Dr. Hughes has said about the unreliability of the symptoms in the *Chronic Diseases*, believe there are grains of genuine symptoms there in the midst of much chaff and should not be lost. The reservation is that while for purposes of the Repertory the *Materia Medica Pura* will be used in its entirety, and the *Fragmenta de Viribus* for the three medicines *Cantharis*, *Copaiba*, and *Valerian*, the symptoms of the *Chronic Diseases* from Hahnemann's fresh contributions and from provings made for it by his disciples with the 30th dilution, would be rejected. .

The inclusion of symptoms from the 30th dilution alone (unless otherwise confirmed) would have been, in Dr. Hughes' opinion, a violation of one of the rules (9th) which guided in the compilation of the *Cyclopædia*. He refers to a specimen of two provings of *Natrum Muraticum* with the 30th dilution which he published in the *Monthly Homœopathic Review* for September 1889,

"as not one to make us enamoured of its kind." Without being enamoured of the provings as a whole we may yet cull from them such symptoms as have all the probability of genuineness. Even Dr. Watzke, whose comments on the provings Dr. Hughes so highly approves, says—"In my opinion this only can be inferred with certainty from these two questionable provings, viz., that experiments with the smallest doses may indeed sometimes furnish contributions worthy of notice to the completion of the physiological picture of a drug, and hence are by no means to be neglected, but that they seldom excel in practical value the experiments with the medium and larger doses, and still more rarely enable the latter to be wholly dispensed with."

The fact that provings with the 30th dilution do produce symptoms which are corroborated by those produced by the lower dilutions, shows that the 30th dilution can affect the organism pathogenetically. To accept only those symptoms which are thus corroborated is to ignore this fact and to violate common sense and logic. To accept only corroborated symptoms however produced, whether by the crude drug or by the lower attenuations, would lead to the rejection of more than half the symptoms of the *Materia Medica*, and would be ignoring a most positive fact, the fact of idiosyncrasy. We, therefore, hope that Dr. Hughes will yet see his way not to persevere in his determination to reject all the symptoms that have been produced by the 30th dilution. He, of all our colleagues throughout the world, is most competent, by his extensive scholarship, by his sound judgment, and by his thorough conscientiousness, to sift the grain from the chaff, the real and the genuine from the false and the counterfeit.

We shall now give our readers an idea of how the Repertory is being compiled. "Those who will use it believe," says Dr. Hughes "that the best medicine for a given morbid condition is one which has shown the power of inducing its *simile* on the healthy subject. They are, as students, meditating on the types of disease described in books, or, as practitioners, confronting the varieties of the same encountered in daily practice. They wish to find the drug or drugs which are pathogenetic as regards such groups of phenomena; and they ask for a repertory which shall be, as its name implies, a means of *finding* in the *Materia Medica* the symptoms which characterize the condition to be treated."

"They do not care, as an historical question, whether such and such a symptom has occurred in the pathogenesis of a medicine. They rather ask whether it has so appeared as to make it reasonably certain that it is a direct effect of the drug—that there is such a *nexus* between one and the other that, when the symptom comes before us in disease, we may trust the drug to lay hold of it." Hence, says Dr. Hughes, "with this view we must not assume every thing recorded in the pathogeneses as worthy of reference. The narratives of the provers have had to be given as they stand (with merely condensation of expression and omission of what is palpably dubious), lest any thing should be lost. In reading them over, however, it is obvious that much is but incidental, transitory, personal; and to refer to this in a practical index would be to lead the prescriber by a will-o'-the-wisp. Only such effects as by the force of their occurrence or the constancy of their recurrence witness to organic connection with their assumed causes should find place."

It is by a rigid attention to this principle that the repertory is being prevented from being unwieldy and untrustworthy. "Nothing," we are assured, "has been omitted which has any thing distinctive about it, whether it be in 'substantiva' or in 'adjectiva.'"

As regards the order of the index we are glad to find that the choice has fallen upon the schematic form first used by Hahnemann, in preference to the alphabetical adopted by Dr. T. F. Allen. Dr. Hughes had to improve upon Hahnemann's schema and make it more rational. "Hahnemann's," we are told, "is unexceptionable as regards sections from head to extremities (save that the symptoms of the nose, being mainly of its internal lining, belong to the respiratory system rather than to the face). The classification is intelligible and free from theory, being purely anatomical. But beyond these there is great confusion. The disorders of the nervous system are strangely scattered. Perspiration, instead of appearing as a cutaneous phenomenon, always stands among the symptoms of fever whether it was preceded by this state or not. Sleep is put into a place by itself, often including apoplectic conditions."

The improvement consists in making two new anatomical classes, "Nervous System" and "Circulatory Organs." Under the former, mental and moral symptoms, convulsions and paralyzes, disorders of perception and perversions of sensibility, and sleep, are placed. Under the latter, besides the symptoms proper of the heart and blood-vessels, fever is included. We have no fault to find with the classification, except that the Urinary and the Reproductive organs are not quite properly classified under PELVIC ORGANS. Now it must strike every one that the kidneys and the *mammæ* cannot possibly come under the category of organs

situated in the Pelvis. There 'was, we submit, no necessity of making a class called Pelvic Organs. The Urinary and the Reproductive organs might very well have been denominated the Urinary and the Reproductive systems, without any reference to their situation, which is not the same for all of them. As we are told that the lists, from "Eyes" onwards, are liable to modification as the final revision of the MS goes on, we trust the class PELVIC ORGANS would be abolished. We would notice one omission, and that is, the omission of the *Æsophagus* under the digestive system. We have, in the pathogeneses of several drugs, symptoms referrible to this portion of the alimentary tract and it is not right to omit it in a schematic arrangement which professes to be more rational and comprehensive than its predecessors.

So far as we can judge from the Part before us, embracing the Nervous System and the Head, we can conscientiously say that Dr. Hughes has done the work excellently well. If the remaining parts are done as well, of which we have every guarantee from the specimen before us, and from Dr. Hughes' known abilities, we shall have a Repertory which will serve the purpose for which it is being compiled, namely to enable the student and the practitioner to find any true disease-symptom which finds place in drug-pathogenesis "with the minimum of trouble and the maximum of certainty," or as Dr. Van Denburg put it, "in the least time and with the least expenditure of energy."

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## EDITOR'S NOTES.

**General Paralysis in the Young.**

ALZHEIMER (*Allg. Zeitschr. f. Psychiatrie*, lii, fasc. 3) has collected the recorded cases of general paralysis of the insane occurring in children and young persons. Thirty-eight cases have been reported, and to these the writer adds 3 cases observed by himself, 1 beginning at the age of 9 years. Unlike the disease in adults, it occurs with equal frequency in the two sexes. The onset in 8 cases was in the 13th or 14th year; in 11 cases it was in the 15th or 16th year, while other cases began a little later. In 28 out of 34 cases hereditary syphilis was certain or probable, and in more than half the cases there was some neurotic heredity. The symptoms and pathology were the same as in adults, and duration of the disease was about 4½ years in most of the cases, but in some was more than seven years.—*British Medical Journal*, Aug. 7, 1897.

**Hysteria in the Male.**

A. Vogt (*Norsk Mag. f. Lægevidensk.*, No. 1, 1897) reports the case of a working man, aged 42, suddenly attacked by paralysis of the left side of the body, which later extended to the whole of that side. There was no sign of syphilis. The condition lasted for four months without much change. There was anaesthesia of the left side and paresis of both upper and lower limbs. The left testicle was hyperæsthetic and there were hyperæsthetic spots on the left side of the back. There was diminution of hearing and sight on the left side; on the right there was nothing abnormal. Purely suggestive treatment without any drugs effected a complete cure.—*Brit. Med. Jour.*, August 14, 1897.

**Sulphate of Quinine in Incomplete Abortion.**

Schwab (*Rev. Méd.-chir. des Mal. des Femmes*, June 25th, 1897) points out that obstetricians are not agreed as to the best treatment of incomplete abortion, some leaving matters alone unless hæmorrhage or sepsis appear, others proceeding at once to the clearing out of the uterus with finger or curette. He is of opinion that, save in the cases in which the medical man can keep the patient under constant supervision, in which antiseptic precautions have been carried out from the commencement of the abortion, and in which the os is still closed, the uterus ought to be emptied at once. He admits, however, that the curette has its dangers, and that ergot is inconvenient, so he recommends sulphate of quinine. He has used it with success in 7 cases of incomplete abortion. It is quite safe, it does not set up a tetanic condition of the uterine muscle, it may be given in two doses of 8 grains at an interval of ten minutes, and it usually causes emptying of the uterus in about four and a-half hours.—*Ibid.*

**The Action of "X" Rays on Micro-organisms.**

Bonomo and Gros (*Giornal. Med. del Regio Esercito*, an. 45, n. 6) have made researches in the military hospital at Rome on this subject.



They subjected cultures of various micro-organisms (*B. subtilis*, *B. tuberculosis*, *B. anthracis*, and others) up to the third generation to the influence of the  $x$  rays, applied vertically, for a period of about three hours each day. Some retardation or diminution of vitality, vegetative and pathogenic, was observed in every case, but the change was for the most part very slight, except in the case of *B. anthracis*. With this microbe a well-marked diminution in motor activity, modification of chromogenic power and loss of sporeproducing property was observed. With this, too, a complete attenuation of pathogenic effects was observed, so that the authors feel it might be possible through successive cultures exposed to the  $x$  rays to make the *B. anthracis* innocuous. No such marked results were obtained with the other micro-organisms under the influence of the same rays. In every case such effects as were observed were more noticeable in the later than the earlier cultures.—*Brit. Med. Jour.* Aug. 14, 1897.

### Prof. Fraser on bile against Serpent Venom.

Prof. T. R. Fraser, F.R.S., whose experiments on immunisation against serpents' venom, and the treatment of snake-bite with antivenene, have been fully described in these columns (vol. liii. p. 569, 1896), has made another contribution to this subject. His experiments showed, among other things, that, when introduced into the stomach of an animal, serpents' venom produces no obvious injury, even when the quantity is so large as to be sufficient to kill 1000 animals of the same species and weight if the venom were injected under the skin. An investigation of this remarkable fact has now proved that the cause is to be found in the bile, which has such a decided influence upon serpents' venom that it is sufficient in itself to account for the innocuousness of stomach administration. It is shown that the bile of venomous serpents is able, when mixed with the venom of serpents, to prevent lethal doses of the latter from producing death; and that the bile is indeed so powerful an agent in doing this, that a quantity actually smaller than the quantity of venom may be sufficient for the purpose. It need scarcely be added that the doses of bile thus shown to be sufficient represent only minute portions of the bile stored in the gall-bladder of a serpent, and that a serpent, therefore, has at its disposal enough of bile to prevent injury from venom introduced into the stomach in quantities many times greater than the minimum lethal dose. The bile of other animals, such as the ox, rabbit, and guinea-pig, also possesses this anti-venomous property, but in a smaller degree than that of venomous serpents. Prof. Fraser has isolated the antidotal constituent from the bile of venomous serpents, and an experiment with this substance not only supplies strong confirmation of the evidence that bile is able to render serpents' venom inert, but also suggests that from bile there may be produced an antidote for snake-poisoning, which, in its antidotal value, is at least equal to the most powerful antivenene or antivenomous serum as yet obtained from the blood of immunised animals.—*Nature*, Aug. 5, 1897.

### **The German Commission on Plague.**

The Commission states that the bacilli of plague very easily perish outside the human body or that of animals. Cultures of the bacilli were destroyed by boiling and by corrosive sublimate at once, by mineral acids within five minutes, by carbolic acid within ten minutes, and by milk of lime within an hour. In ordinary town water the bacilli died within three days, being unable to live without atmospheric oxygen. Pigeons, fowls, geese, and pigs did not show any reaction after injections of cultures of the bacilli; sheep and goats were more sensitive to the infection; whilst horses, and especially cattle, were very liable to contract the disease. All the animals artificially infected eventually recovered. The greatest liability to the disease was presented by rats, which, it was found, carried the bacilli from house to house, and in this way were very dangerous to the population. Grey monkeys were not quite so readily affected. Monkeys were therefore used for the study of artificial immunisation. It was proved by experiments that injections of Haffkine's serum produced immunity, especially cultures of high virulence which had been exposed to a temperature of 65°C. (149°F.) for an hour. The immunity appeared after a period of from five to seven days. Monkeys immunised in this way were immune against about two milligrammes of a culture of plague bacilli. The serum of Yersin was also tested by the Commission. An injection of 2 c.c. of this serum given to brown monkeys made them immune against 2 c.c. of plague culture, but it was found that 1 c.c. was not sufficient for the purpose. With grey monkeys, however, the serum was useless. The immunity of brown monkeys lasted only eight days. Strong serum had a remedial effect on these monkeys, but there was no evidence that the disease occurring in the human subject could be treated in this way. The report further states that Professor Koch, on May 18th, visited the Portuguese town of Damaon, where he observed that the natives who lived in houses had nearly caught the disease, whereas those who camped out were comparatively seldom attacked. The effect of 1400 injections performed there after Haffkine's method was to produce marked immunisation; some of these patients fell ill, but only twenty of them died, and in most cases the symptoms were mild. Some members of the Commission visited the North-West Provinces for the purpose of investigating a disease called mahamari, which is apparently identical with the bubonic plague.—*The Lancet*, Aug. 7, 1897.

### **A case of Gastric Ulcer perforating into the Pericardium.**

The following case has been published by Mr. Collingwood Fenwick, M.R.C.S. Eng., L.R.C.P. London, in the *Lancet* for Aug. 14, 1897. The extreme rarity of perforation of simple gastric ulcer into the cavity of the pericardium, marks the case with peculiar interest.

On July 30th, at 5-55 P.M., I was hastily summoned to attend a man who had been taken suddenly ill. Arriving at his house three minutes after receiving the summons I found him lying dead on a

garden chair. The history I obtained from the widow was as follows. Her husband's age was fifty-five years, and until recent years he had been a builder. On the day of his decease he returned home from a walk at about 5-30 p.m., but made no complaint and appeared to be in his usual health. He had never complained of pain after food or suffered from vomiting or any other symptom of gastric disease. Immediately on finishing his meal, which consisted of tea, fish, and bread and butter, he rose from the table complaining of pain and palpitation. After walking a few yards he sat down, and his wife, noticing that he looked very pale, administered some whisky and water, but he expired in about a minute.

*Necropsy.*—The results of the post-mortem examination, made twelve hours after death, were as follows. The body was that of a stout elderly man. The lungs were emphysematous, the right lung being bound to chest-wall by strong pleuritic adhesions. The pericardium was found to contain several ounces of tea, which smelt of whisky, and some particles of fish. On the lower surface of the pericardium a small aperture was discovered admitting a stout probe, which was passed downwards through the diaphragm into the abdominal cavity. The heart itself weighed thirteen ounces and was extensively infiltrated with fat; the valves were normal. The anterior surface of the stomach was found to be firmly adherent to the under surface of the diaphragm, and opening the viscus a chronic ulcer the size of a shilling, with indurated edges, was seen to be situated about the centre of the lesser curvature. From the base of the ulcer a sinus track led upwards and to the right through the substance of the pericardium. The stomach contained fourteen ounces of undigested material, composed of tea, fish, and sodden bread. All the other organs were apparently healthy.

### Nocturnal Incontinence.

Mendelssohn (*Berl. klin. Woch.*), in a long paper on this subject, comes to the conclusion that the most generally successful treatment is a combination of three means; a supper without fluids, elevation of the foot of the bed, and tincture of *rhus aromatica*, from ten to fifteen drops, t.d., which he says, seems to have a specific action in this trouble. The general health of the child and any local affection of the genito-urinary system should, of course, receive proper attention. Prendergast (*N. Y. Med. Jour.*, July 11, 1896) warmly advocates the cold douche or shower-bath at bedtime. He systematically used it on 80 "bedwetters" (all boys) in an orphan asylum, and at the end of a few months all but five were considered as cured, and the five were all improved. He adds: "During the whole course of treatment not a boy was placed on special diet; they ate whatever was served at meals, drank tea at supper, and had as much water as they wished. Not a drug of any kind was given, and not the slightest attention was paid to any peripheral causes, such as a long foreskin, tight prepuce, condition of the urine, etc., so that the test was a thorough one. One of the boys had been circumcised a year previous to the cold-water treatment without bene-

fit, but was cured in two weeks by the douching. One very nervous lad was completely cured with one bath, probably owing to the shock and profound mental impression. One of the cases cured was that of a feeble-minded boy of eleven; he was mentally so deficient that it had been impossible to teach him the alphabet after four years' attendance at school, so that mental impression does not wholly count for the cure. The method employed in treating the cases was as follows:—The boy was stripped and placed standing in an empty bath-tub; a basin, or a vessel with a spout to it, like a watering-can, was filled with cold water and poured over the shoulders and down the back of the subject. In the nervous, delicate children, one dash of water was sufficient for an application; in the sluggish, phlegmatic lads the dose might be repeated. The boy was immediately rubbed down, dressed in his night-clothes, and put in bed. From a hygienic point of view the cold water has proved an excellent tonic: not one of the 80 boys has had a 'cold' the past winter. A number of the boys treated suffered incontinence of urine during the day, but all have been cured. Occasionally we have a backslider whose spinal centre takes a 'nap,' but it is at once put on guard by a douche or two. The ages of the boys ranged from six to twelve years, and we have 485 in the institution. Since starting this article I have learned an important point in carrying out this treatment; it is, that sponging the back with cold water does not have the same effect as the douching. A private patient brought her boy to me for treatment for this condition. I ordered the cold douching, but the mother, from false motives of sympathy for the child, objected, and compromised by sponging the spine with cold water. She informed me two weeks afterwards that cold sponging had had no effect, but that six cold douchings with a fountain syringe had cured the boy. This was a month ago, and the child has not relapsed yet. From this I would judge that the shock of the cold water is one of the important elements in the cure of the condition."—*The Practitioner*, Aug. 1897.

### Some Usual Cases.

Mr. Henry Lee, Consulting Surgeon to St. George's Hospital, has published the following really "unusual cases" in the *Lancet*:

CASE 1.—Some years ago, whilst on a visit at West Ilsley, where there was no resident medical man, I was asked to see a boy, who, with others, had been trying a chaff-cutting machine. By some means or other he got his arm in front of the blades whilst the machine was in action. Immediately below the left armpit there was a gaping wound down to the bone. In this the open mouth of the lower extremity of the divided axillary artery could be plainly seen. The boy was faint and frightened, and there was no bleeding then to signify. Having a pocket-case with me the artery was tied and the wound closed. In this case the nerves were doubtless divided. The power of moving the arm had permanently gone.

CASE 2.—A patient who had worn a bivalved tracheotomy tube for a long time presented himself at St. George's Hospital. The shield of

the tube had become detached, and the two valves had fallen into the trachea. These were removed separately by a carved pair of forceps.

CASE 3.—Soon after the introduction of the fourpenny-pieces a boy playing with one got it into his trachea. He was placed face downwards over a counter. One person held his heels and two others lowered his head. He soon became blue in the face and had to be restored to the upright position. This experiment was tried a number of times and always with the same result. After some delay this patient went to St. Thomas's Hospital, where one day he went suddenly to the watercloset and was sick. A metallic clink on the pan of the water-closet was heard and there were no further symptoms. The fourpenny-piece was not recovered.

CASE 4.—In Mr. Brunel's case, as is well known, he constructed a revolving apparatus, by means of which he could, when attached to it be inverted without any physical exertion. The result was the same as in the last-mentioned case. The spasm of the glottis necessitated the return to the erect position. This was often tried, but ultimately with no better result than my "counter" arrangement. At length Sir B. Brodie opened the trachea and Mr. Brunel was placed on his revolving apparatus, and the half-sovereign, which had passed into the trachea, came out of his mouth.—*Lancet*, July 14, 1897.

CASE 5.—A female hospital patient under my care was suddenly seized with violent pain in the stomach and died shortly afterwards. Upon inspection a pin was found in the vermiform appendix, the point of which had evidently fretted its way through the end of the appendix. The opening this made communicated with an abscess in the peritoneal cavity. In any similar case friction in order to relieve pain might do much harm.

CASE 6.—When the original Taplow Station was being built a workman fell some 20 ft. on his head. He made a very slow and imperfect recovery and was never quite himself again. A pint of beer would make him appear intoxicated, and he remained deaf on one side. He was given some light work to do on the line, and was struck and killed by an engine. It was found that there had been an extensive fracture of the petrous portion of the temporal bone. A considerable part of the fracture had been smoothly and firmly united. In other parts there were intervals. There was no appearance of any callus having been thrown out. The preparation is in the museum of the Royal College of Surgeons of England.

CASE 7.—A private patient had long suffered from some irritation in passing urine, and had an instrument introduced. After this he passed a small calculus, and on one side of this there was an accurate mould of the openings of the spermatic ducts. It was placed in the museum of St. George's Hospital.

CASE 8.—In Norfolk one day I met a clergyman riding on horseback. During our conversation his horse suddenly became restive, and jumped about a good deal. Very soon after this gentleman told me that a small stone had passed from the urethra. In this case, as in the last, the calculus doubtless came from the prostate gland.—*Ibid*, August 28, 1897.

### Penetrating wound of the Pericardium and left Ventricle; Recovery.

Dr. G. Sandison Brock has sent the following Interesting Communication from Rome to the *Lancet* for July 31, 1897. It shows that we ought not to despair even in the very gravest cases of wounds of the heart:

Instances of recovery from penetrating wounds of the heart are so rare that the following account of a successful case operated upon by Dr. Parrozzani, assistant to Professor Tassi at the hospital of Santa Maria della Consolazione in Rome, will be of interest. I am indebted for these notes to Dr. Parrozzani, who showed me the patient already so nearly well that he was about to be discharged from the hospital.

On the night of April 18th, a porter at the river-side, aged thirty-two years, of very robust constitution, received a stab from a dagger in the seventh left intercostal space in the mid-axillary line. When brought to the hospital five hours afterwards he presented all the symptoms of excessive hæmorrhage. He was extremely pallid, the pulse and heart beats were almost imperceptible, and the respiration was very rapid and superficial. There was evidently no time to be lost and he was operated on at once. An incision was made through skin and muscle commencing at about  $1\frac{1}{2}$  in. (3cm.) from the margin of the sternum in the fourth intercostal space, along which it was carried for a distance of  $5\frac{1}{2}$  in. (14 cm.). It was then continued at right angles to its former direction downwards along the mid-axillary line, including the dagger wound in its course, as far as the upper margin of the ninth rib. The whole incision had thus the shape of the letter L inverted. The pleura was next incised at the level of the fourth intercostal space in the horizontal line of the inverted L, and the fifth, sixth, seventh, and eighth ribs, with the attached pleura, cut through in the vertical line. A triangular-shaped door or shutter, to which the costal cartilages acted as a hinge, was thus formed. Such a large opening was deemed desirable for fear of any wound of the diaphragm or abdominal viscera. On reflecting the shutter, the pleural cavity was found filled with blood, and the pericardium presented a solution of its continuity 1 in. ( $2\frac{1}{2}$  cm.) in length, from which at regular intervals issued a small jet of blood. The opening in the pericardium having been enlarged to nearly  $2\frac{1}{2}$  in. (6 cm.), the cavity was freed of the small quantity of blood it contained. The blood had not accumulated in the pericardial sac in any considerable quantity owing to the fact that the wound in the latter, being at its most dependent part near the apex of the heart, had allowed the blood to escape readily into the pleural cavity. This was a fortunate circumstance, since the usual cause of death in these cases—viz., the fatal pressure exercised upon the heart by the blood accumulating in the sac round it—was here absent. The apex of the heart presented a wound about  $\frac{3}{4}$  inch (2 cm.) in length, from which the blood spurted in small jets at every beat of the organ. The pulsations of the heart had become so extremely feeble that it seemed as if they were about to stop altogether. Introducing the little finger of the left hand into the wound, Dr. Parrozzani found that it passed into the left ventricle.

obliquely, but quite freely from the apex towards the base. The inserted finger served the double purpose of checking the hæmorrhage and of fixing the apex of the heart so that the wound could more easily be secured. A large curved needle armed with No. 2 silk was now passed deeply through the whole thickness of the myocardium, but without touching the endocardium, the little finger being withdrawn from the wound and the thread rapidly knotted. The entrance of the needle into the myocardium caused the heart to throb vigorously, and the withdrawal of the finger was followed by a gush of blood completely flooding and obscuring the field of operation. The wound was, however, effectually closed by three more stitches, the blood-clots cleared out of both pericardial and pleural sacs, and the "shutter" in the chest wall finally closed by deep and superficial sutures. The operation lasted an hour and a quarter. No chloroform was used, but twelve subcutaneous injections of ether and five of camphorated oil, and a few of caffeine were administered. A saline solution (1500 grammes) was introduced by hypodermoclysis, and thorough auto-infusion (by means of Esmarch's bandages), was practised. One hour after the operation the pulse became quite perceptible. The wound healed by first intention, and no complication in myocardium or pericardium arose during convalescence. The temperature on, one occasion rose to 102°F., but this was probably connected with a slough which formed in the right pectoral region where the saline solution was injected. Traces of albumin were found in the urine and there was an excess of uric acid. When I saw the patient on May 26th, thirty-eight days after the operation, he had nearly recovered from his profound anæmia and said he felt quite well.

According to Professor Tassi (in whose clinic four of them occurred) eight cases of wound of the pericardium or of the heart and pericardium have been operated upon in Rome during the last six years; of these, four involved the pericardium alone and four the pericardium and one or other of the ventricles. Of the former three were successful; of the latter two survived for only a few hours, one died after eight days from anæmia, while the fourth—that related above—has proved entirely successful. There appear to be only two other cases recorded of the kind where operative interference was attempted. Happily it is only in Italy that surgeons have many opportunities of practising cardiac surgery—opportunities they owe to the terrible frequency with which the dagger is resorted to in this country in the quarrels of the lower orders.

Since the above was written Dr. Parrozzani has again operated in a similar case—that of a young woman who was stabbed through the heart by another woman. The mode of procedure adopted was the same, the injury being again in the left ventricle. The patient, however, died on the second day, and on post-mortem examination it was found that the inter-ventricular septum had also been penetrated.

## CLINICAL RECORD.

## Foreign.

*Phosphorus Cases.*

By ANDREW M. NEATRY, L.R.C.P., etc.

## 1. Dyspepsia.

Mrs. P., aged between 55 and 60, a widow. 14th March, 1896. This patient complains of very severe vertigo on rising in the morning. She has pain over the front of the chest immediately on taking food. There is at times tenderness over stomach. No swelling has been noticed, but she is very intolerant of pressure round the waist, and there is a sense of repletion after even a small quantity of food. She is subject to constipation and piles. Defecation causes smarting, and is followed by exhaustion. There is considerable nausea. She has a decided taste for animal food. She has taken hot water to relieve the symptoms, and thinks it has had some effect. There is nothing conspicuous about the tongue, but there is a sour taste in the mouth on waking. She is very far from robust, and complains of faintness, exhaustion and coldness of the extremities. She is drowsy by day. She is not much troubled with headache now, but has been so formerly. She complains of palpitation. Phosph. 6 pil. iii. n. and m.

17th March. There is less vertigo. The pain after food is less frequent. There is less tenderness of the stomach and less faintness and exhaustion, and less drowsiness. Very little fulness after food. Continue.

21st March. The improvement continues steadily. There is now less distress after defecation, though the bowels are not yet acting freely. The nausea and the palpitation have disappeared. The patient complains of some pain between the shoulders. Continue.

24th March. Great improvement. The bowels are acting better and the distress after defecation is much less. Continue.

28th March. There is still a steady improvement in the dyspeptic symptoms. Sulph. 12 pil. iii. n. and m.

In about ten days from the last date the patient was quite free from dyspeptic symptoms, and now (27th May, 1897) has continued free from them ever since, with the exception (if such it can be called) of a threatening of relapse a few months ago. Phosphorus was promptly administered, with a perfectly satisfactory result.

## 2. Præcordial pain and dyspnœa.

Miss R., aged 12. 11th May, 1896. The patient has been suffering from præcordial pain for three weeks. Some time ago she used to be subject to such attacks. There is aggravation on making exertion, but no immunity during rest. There is aggravation on deep inspiration. She has been troubled with dyspnœa for four years. The appetite is good, the bowels regular, there are no dyspeptic symptoms, and she sleeps well. She is subject to a throbbing headache over the left eye, which is worse on going to school. There is some palpitation after taking hot tea. She has suffered from prolonged weakness. Has never had rheumatic fever. There is no morbus cordis. Phosph. 3 n. and m.



14th May. Much less pain and dyspnoea. No headache since beginning the medicine. Feels a little stronger. Continue.

21st May. Improvement continues. Feels stronger. No dyspnoea. Continue once a day.

25th May. Quite well.

### \*3. Threatened phthisis.

Miss C., aged about 12. 22nd May, 1896. This patient has had a cough for three months. Coughing is provoked by some irritation under the upper part of the sternum. There is no expectoration. Pain is felt in the right side of the chest on coughing or on taking a deep inspiration. For two or three months she has been losing flesh and strength, and her friends have noticed that she has been feverish at night. There is some pallor noticeable now, but the patient has been observed to be flushed late in the evening when asleep. There has been no night sweating. Patient has been growing rapidly, and catches cold easily. One of her sisters died of phthisis. The appetite is poor, the bowels slightly confined, and there is some headache on the vertex which is aggravated by the cough. There is some falling in of the chest wall under the right clavicle, otherwise physical examination is negative. Phosph. 6 pil. iii n and m.

27th May. The pain has disappeared. The cough, the irritation provoking the cough, and the headache are better. Continue.

3rd June. No pain. Cough better. The face is filling out and the patient is stronger. Continue.

18th June. Has been away for a week. Before leaving the cough had nearly disappeared, and during absence she has not coughed at all. The patient feels stronger, and her friends have noticed a very marked improvement in general health. Phosph. 6 pil. iii once a day.

27th May, 1897. No return of symptoms.

### 4. Nervous exhaustion.

P. N., a lad of about 14. 29th May. Patient fainted in chapel on Sunday, owing to pain in the spinal column about the level of the waist. He only feels this pain on Sunday, and it is especially severe when standing in chapel. He has had it from four to six weeks. Appetite good. Sleeps all night, but his sleep is not thoroughly refreshing. The bowels act regularly. He complains of headache, generally situated in the forehead, as if a great weight were pressing it. He studies hard, and is growing fast—2½ inches in five months. Sulph. 6 gr. i. n. and m.

5th June. Patient better. Feels little inclination to faint. No cephalalgia since last visit. Still troubled with pain in the back. Phosph. 3 n. and m.

12th June. Quite free from pain in the back and faintness. Continue.

27th July. I was again consulted, as the patient seemed to be going back. There has been no fainting, but he often feels faint, as if he were going to lose consciousness. There is a sense of weariness and loss of energy and cheerfulness. He gets tired very easily. Though

not timid, he shows some aversion to solitude. There is pain in the lower part of the back as if the spine were broken. This pain is worse on moving. He also complains of a weary aching in the back and sometimes in the knees. He feels as if the popliteal tendons were drawing the leg up. There is a marked deterioration of memory. There is an occasional sensation as if something burst in his head, followed by a taste of blood in the mouth. He is always worse on Sundays. There is dull aching over the vertex, aggravated by movement and disappearing altogether when lying down. He sleeps all night, but is unrefreshed. He does not dream much. He is listless and irritable without any cause that his friends can discover. Phosph. 30 pil. iii n. and m. It was ascertained that the boy practised masturbation, which, it is believed, he discontinued.

3rd August, 1896. Decidedly better. Repeat.

17th August.—Scarcely any backache or other symptoms now. Repeat. The improvement seemed too prompt to be due simply to the discontinuance of the habit.

My attendance ceased here, but on attending another member of the family some time later I learned that he was keeping quite well.

#### 5. Marasmus.

J. F., girl aged 15 months. 9th July, 1896. Has been wasting for about a month. Previously she had never had a day's illness. Has been noticed to pick her nose very much. The respiration is laboured and sixty per minute. She has had measles, from which she is said to have made a good recovery. There is now a good deal of bronchitis. The cough is loose. The bowels act irregularly and the motions are offensive, the smell being described as earthy. The appetite is poor. The child sleeps fairly well. She seems very exhausted after the cough. Phos. 4x ter.

16th July. Yesterday the child began walking again after four or five weeks interval. There is less picking of the nose. The appetite is improved. The bowels are acting regularly. The cough is less frequent and less exhausting. Continue.

20th July. Does not cough more than once or twice a day, and then not very violently. Does not seem exhausted after the cough as she did. The motions are getting more healthy in colour. Continue.

27th July. Coughs very seldom indeed. The exhausting character of the cough is entirely gone. The motions are less offensive. Phos. 4x n. and m.

6th August. The cough is gone and the bowels are regular.—*The Monthly Homœopathic Review*, July, 18

## THERAPEUTICS OF CONSTIPATION, DIARRHŒEA, DYSENTERY, AND CHOLERA.

### 152. LYCOPUS VIRGINICUS.

#### **Constipation :**

1. Constipation after papescent or watery sts.
2. Fæces hard, dark, scanty, passed with straining and consequent bleeding.
3. Constipation succeeded by softer and freer motions, of peculiar shining yellowish brown.

#### **Diarrhoea :**

1. Increased action of bowels ; could have had a passage any time of day, but had perfect control of sphincter ani.
2. Motions loose, light in color.
3. Watery sts. Sts. slimy, peculiarly dark shining brown, offensive, gushing out.
4. First part of each motion being solid and natural, second part slimy, peculiar shining brown, but much less offensive.
5. Sts. shiny, peculiar grayish brown, as if mixed with ashes.
6. Motion slimy, of a shiny yellow color, offensive.
7. During past few days fæces partly solid and natural passed with much straining, partly soft of peculiar shining brown, passed freely. (26th day.)

#### **During St :**

1. Straining (hard st.)
2. Gushing out.

#### **Rectum and Anus :**

1. Bleeding from hæmorrhoids which came on from constipation.

#### **General Symptoms :**

1. Difficulty in concentrating attention and thought. Giddiness with tendency to stagger. Frontal headache.
2. Eyes full, painful, and pressing outwards. Constant pressure in eyes and front head. Painful pressure in eye balls.
3. Tendency to toothache, first in right molars, then transferred to left. Sharp pain right lower molars, passing to right temple, then to left lower molars, then to left temple, then returning to right lower molars, then settling in loins, with frontal oppression.
4. Burning in palate. Pain in pharynx increased by deglutition.
5. Persistent nausea, rising from back of fauces, relieved by eructations, which taste of tea and drug, succeeded by persistent giddiness while sitting, with staggering to right on walking. Nausea, with faintness, when walking in open air, not relieved by eating.
6. A circumscribed pain and compression in epigastric region. Stitch-like pain in stomach, causing an exclamation. Throbbing pain in cardia.
7. Tenderness in left hypochondrium. Dragging pain in spleen. Rumbling of bowels with colic. Excessive flatulence. Tenderness in abdomen. Continuous aching along inguinal canals.
8. Tenderness in Bladder. Dull pain in left lumbar region. Bladder feels distended when empty. Urine deposits excess.

- of mucus. Diminished sp. gr. coming down so low as 1004.
- 9. Acute pains in testicles, first left, then right; recurring and lasting the whole evening, with aching in inguinal canals. Sharp darting pains through left testicle (epididymis) several times repeated, passing to right testicle, leaving dull aching.
- 10. Constriction of larynx, with return of giddiness. Sighing and yawning. Oppressed respiration, with sighing. Dyspnoea as from bronchial cold.
- \* 11. Constricting pain and tenderness around heart. Beats of heart more distinct on right side of sternum. Cardiac depression, with dull heavy beating. On waking frequent intermissions, and labored cardiac action. Cardiac distress marked at apex. Palpitation on slight exertion. Pulse irregular and intermittent, especially when lying, quickened at each inspiration. Heart's sounds indistinct, systole running into diastole.
- 12. Unsteadiness of hands, rendering writing somewhat difficult. Left lower limb feels full *one-half* inch shorter than the other, and the foot sounds on the sidewalk as if this was positively the case.
- 13. Night very restless, sleep full of troublesome dreams.
- \* 14. Increased mental and physical activity; ready for any amount of work. General debility, especially on walking. Rheumatoid pains, erratic, but returning to original location.
- 15. Prickings as if bitten by insects. Troublesome urticaria.

**Remarks :** LYCORUS, so far as we have been able to ascertain, has not yet been used in our school for bowel complaints as such, though the eclectics use it for both diarrhœa and dysentery. The symptoms of the alimentary tract, as revealed in the few meagre provings we have, point to it as a remedy which may be useful in CONSTIPATION and DIARRHŒA; in CONSTIPATION when this condition comes on after diarrhœa and is again followed by loose motions, and when the stools are hard, dark, and scanty, passed with much straining and consequent bleeding; in DIARRHŒA when the motions are slimy, light in color, or dark brown, or grayish brown as if mixed with ashes, and have a peculiar shining appearance, and are passed freely without straining or pain, or even gush out. It will be particularly appropriate, if the diarrhœa is associated with cardiac troubles. Dr. Hale has found it useful in "diarrhœa in jaundice, from weakened heart." He also speaks of its curative action being sometimes very marked in those cases of pulmonary disease (phthisis) when they are accompanied by looseness of the bowels. It is useful to remember that, though the urinary symptoms of the drug, so far as developed by provings, do not justify its homœopathic use in the disease, in the hands of the eclectics, in massive doses, it has been "decidedly beneficial in the treatment of diabetes when all other means were useless." So the presence of diabetes would be an additional indication for LYCORUS. The drug seems to have produced and cured exophthalmus.

**Cleanings from Contemporary Literature.****SOME OF THE PECULIARITIES OF THE ANATOMICAL  
STRUCTURE OF CHILDREN.**

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All diseases in children, whether peculiar to them or not, show more or less variation from the adult type, the result of two intimately connected factors, the functional and the anatomical. The change in environment to which the infant is compelled to adapt itself at birth, causes a rapidity of functional activity in some directions, in striking contrast to the slower and more difficult adaptation in the adult. It is natural to suppose that the occurrence of disease during this endeavor of nature to bring the new being into harmonious relation with its surroundings, should be attended by symptoms both more intensive and extensive than where such relation has already been established. Hence the wide range of reflex actions in the child, must always be carefully considered. The anatomical structure of the infant, suited for its existence *in utero*, is compelled to take on certain modifications under the influence of the changed conditions and developing functions. These original variations and gradual changes, will cause changes also in the symptoms of disease. Although we may presume that the subjective symptoms are not exactly the same as in the adult, they can be but imperfectly studied in the child, and therefore are of minor importance, as compared with the objective signs, as a means of localizing lesions and diagnosing diseased conditions. It is the purpose of the present short paper to point out some of the more important peculiarities in the anatomy of the child, in as far as they have a bearing upon the manifestation of disease, and our means of its recognition by physical examination.

We will pass them in review without observing any order, but a topographical anatomical one.

Beginning at the head, therefore, we notice that in the ear, the osseous meatus is not developed until about the fourth year, hence, if there be occasion to introduce a speculum before that age, the external ear must be drawn forward and downward, and not upward and backward, as in the case of adults. We must remember too, that at birth, the membrana tympani is nearly horizontal, and only gradually assumes its adult inclination. The eustachian tubes are also horizontal at birth, and while at first the opening is very small, during infancy it becomes absolutely larger at its narrowest part than in the adult; a fact which affords a ready explanation of the ease with which catarrhal processes travel from the nasopharynx to the middle ear.

The respiratory portion of the nasal cavity is very narrow and the nasopharynx very small. The dangers of what might seem trifling catarrhal conditions, become apparent when it is considered how a little congestion and secretion may cause complete obstruction, with its accom-

panying\* disastrous effects upon the neighboring parts, and remotely upon nutrition and growth.

The shape of the thorax in infancy and childhood differs from that in the adult. The antero-posterior and transverse diameters are about equal in the newborn, but after the third year the transverse diameter is always the greater, although it is not until puberty that the chest assumes the shape as found in the adult. The lungs are, therefore, situated rather more posteriorly than in the adult. The ribs form the sides of the thorax, and the cartilages and sternum the front, and, owing to the cartilaginous conditions of these structures, the thoracic walls are very elastic and yielding. The top of the sternum is higher than in the adult, reckoning from the spine, and its lower part relatively poorly developed. The ribs are also more horizontal than later. These circumstances serve to explain the great irregularity in the type of respiration. The rhythm of respiration is easily disturbed, and in young infants, a regular rhythm can only be found during sleep. The lungs do not expand equally; and at certain positions, respiration may\* be carried on almost entirely by one lung. Hence, circumstances and conditions which, in the adult, would be of necessity impossible or fatal, may be met by the infant with impunity. The length of the interval between inspiration and expiration varies much at different times, and regular rhythmical respiration is not established before the end of the second year, so that even marked irregularity may have little or no significance.

The lungs do not reach their full expansion, until the fifth or sixth year, or later. In the beginning the bronchi are larger, more numerous, and occupy a greater space; the air cells are much smaller and occupy less space. Their epithelial cells are very numerous, with a tendency to rapid proliferation (Northrup.) The interstitial tissue is much more abundant than in the adult lung (Delafield.) These peculiarities must constantly be borne in mind in studying diseases of the respiratory organs in infancy and childhood. On account of the small size of the air cells, acute congestion may interfere with their function almost as seriously as complete consolidation. The tendency of inflammation to spread from the larger to the smaller bronchi is very much greater than in the adult, while the rapidity of respiration in all forms of pulmonary diseases is also much increased. Owing to the large size of the liver, there is a marked difference between the percussion of the right and of the left lung. On the right side, behind, the eleventh rib marks the lower border of the lung, while it descends as low as the twelfth on the left. In front, the lung extends to about the fourth or fifth rib on the right, and to the sixth on the left.

The heart of the infant is less covered by the lungs, than in adult life, and during the first year its long axis is more nearly horizontal, so that the apex beat is higher and farther to the left. According to the observations of Wesselewski and Stark, the apex beat, until the fourth year, lies outside the mammary line. If less than one-third inch beyond, it is not

not to be considered abnormal. From the fourth to the ninth year it is found in or near the mammary line, and after the ninth year always within the same. During the first year it is usually in the fourth interspace; after the seventh usually, and after the thirteenth always, when normal, in the fifth. Rachitis, Pott's disease, and lateral curvature of the spine, by the attendant deformities, may cause considerable variations in these figures, while on the other hand, cardiac disease occurring in the young especially up to the third year, may result in deformities of the thorax which, in their turn, may interfere with the normal development of the pulmonary tissue. The areas of relative and of absolute dullness, vary with the age and period of development. The outline of the area of relative dullness, especially in small children, is relatively larger than in the adult, and this may lead to the mistaken opinion that the heart is enlarged, when it may be of normal size. The area of absolute dullness, the part of the heart uncovered by the lungs, resembles in shape, the same in the adult, but is also proportionately larger. According to Hochsinger, the accentuation is upon the first sound, and not upon the second as in adults, and on account of the previously mentioned peculiarities of the thoracic walls, all sounds, normal and pathological, appear louder and more diffused than in the adult. Reduplication of the heart sounds, is not uncommon in children, and may be due simply to excitement. During the first four years of childhood, nearly all abnormal murmurs heard are systolic (Holt.)

The liver is relatively very large in infancy and childhood, and occupies much of the space in the right side of the abdomen, which comes later to be occupied by other organs. Its edge can be recognized from three-eighths to six-eighths of an inch below the border of the lower rib in the hypochondriac and epigastric regions. It gradually diminishes in size, so that at puberty it does not extend below the rib, and but a little projects below the ensiform cartilage of the sternum in front, while in the back, the lungs have reached their adult position.

The stomach, at birth, is remarkably small, with the fundus but imperfectly developed, and hence it is more tubular in shape and more vertically placed. Its capacity at that time is about one ounce. It develops rapidly and the adult shape is soon acquired. Fleischman, Holt and Rotch have made numerous important studies of the capacity of stomachs at different ages, with special reference to the question of feeding. They have shown that it is capable of being caused to contract by the small quantities of food, and, what is of more frequent occurrence, of being greatly dilated by the opposite, and that in estimating its capacity at any period, the weight of the child, irrespective of its actual age, must always be taken into account. In the first year, but little of the stomach can be reached by percussion, but in the following years, owing to its rapid enlargement, it soon comes to assume the position to be occupied in adult life.

As to the large intestines, Treves has found that the sigmoid flexure constitutes nearly one half their length at birth, but at about the fourth month it has acquired its proper permanent proportions.

The cœcum is usually situated higher than in the adult, and the ascending colon is consequently shorter. The position of the vermiform appendix is variable, but as a rule is on the posterior side of the cœcum. The fact that the intestines are less fixed than in adult life, is a strong predisposing cause of the frequent cases of intussusception during the middle of the first year.

The kidneys are lobulated at birth and continue so for a long time. During the first period of life, owing to the size of the liver, the left kidney lies decidedly higher than the right, but from then on they gradually assume the structure and location of the adult kidneys. An important point in regard to the bladder, is, that at birth it is small, but soon becomes capable of great distension, and in infants is practically an abdominal organ, taking up nearly the whole of the lower portion of the cavity of the abdomen. It is difficult if not impossible, therefore, to correctly examine the abdomen of an infant unless we are sure that the bladder is empty. These, by no means, exhaust the list of the peculiarities of anatomical structure in infant and children, but let them suffice.—*Minneapolis Homœopathic Magazine*, July, 1897.

#### EXTRACTS FROM A REPORT ON THE PLAGUE IN BOMBAY.

BY DRs. DYSON AND CALVERT.

1. *Date of commencement.*—The first recorded case of plague was noted on 13th August 1896. The fact of its presence in the city was brought prominently before the public by Dr. Viegas during the second week of September. At first the cases were few in number, and it was not until December that the disease assumed a virulent epidemic character and spread throughout the city. The disease, although checked, still runs its course at the present time.

History shows that on first breaking out in any district the disease has never been recognised, and Bombay forms no exception to this rule. This is due partly to the difficulty of diagnosis, but mainly to the reluctance to admit an unpleasant fact, which must have most injurious effects on the trade and prosperity of the community. Hence the diagnosis is kept in abeyance until there cannot be slightest doubt as to the name which must be given to the disease. Unfortunately by this time the opportunity of limiting its spread and of stamping it out has passed, and the resulting epidemic with all its attendant horrors has to be faced.

2. *Source.*—It would appear most probable that the disease did not originate in Bombay, but was introduced from without. Whence did it come? Unfortunately the data available are insufficient to decide this most important question. Three sources of infection are possible:—

I.—By sea from the ports of the Persian gulf.

II.—By sea from Hong-Kong.

III.—By land from Kumaon in Northern India.

The first would appear to be the most probable supposition.

3. *Quarter first affected.*—The first cases so far as is known, occurred in Mandvi, near the Docks, the great centre of the import trade in Bombay.



4. *People first attacked.*—The people first attacked were coolies working about the Docks and persons living over the grain godowns.

5. *Spread.*—The disease spread as the inhabitants migrated from the affected quarter to other parts of the town previously healthy. As the disease increased in severity, it attacked other classes, but as usual in epidemics in other parts of the world the poor suffered most.

6. *People most affected.*—The poor and overcrowded were the chief sufferers, and the poor because they were overcrowded. Dr. Weir, the Health Officer, observes:—

“The extraordinary freedom, almost immunity to date, enjoyed by the Halalkhores, who clean the privies, and the sweepers who clean the streets and gullies, living in municipal buildings, is due, I believe, to the ventilation of the buildings in which they live.”

We had an opportunity of examining these buildings with Dr. Weir, and are in entire accord with his opinion expressed above. The same classes living in other buildings have suffered as much as the rest of the population. Dr. Weir also alludes to a similar immunity enjoyed by the prostitutes living in different parts of the city—an immunity which he rightly ascribes to the better ventilation of their rooms and the less overcrowded condition in which they live compared to their immediate neighbours.

With a few exceptions, the Europeans almost entirely escaped.

7. *Total mortality.*—The total mortality from the beginning of the epidemic up to the end of April may be roughly put down at 25,500.

8. *Plague.*—We do not propose to give here a history of the true plague, which, under various names, at different times and places, has been known for centuries past, from the year 98 A.D. down to the present time. It will suffice to mention the names applied to the disease in India, and the best known and most authenticated instances of its epidemic appearance in this country during the present century.

9. *Synonyms.*—The true plague—*pestis bubonicus*—has been known in India as the Indian plague, Bombay plague, Pali plague and Mahamari:—

*Previous epidemics in India 1800—97.*

|      |     |     |     |                                   |
|------|-----|-----|-----|-----------------------------------|
| 1815 | ... | ... | ... | Cutch.                            |
| 1817 | ... | ... | ... | Guzrat.                           |
| 1817 | ... | ... | ... | } Sind, Hyderabad, Ahmedabad.     |
| 1821 | ... | ... | ... |                                   |
| 1823 | ... | ... | ... | Kumaon and Gharwal.               |
| 1834 | ... | ... | ... | Ditto.                            |
| 1847 | ... | ... | ... | Ditto.                            |
| 1836 | ... | ... | ... | Marwar, Jodhpur, Rajputana, Pali. |
| 1876 | ... | ... | ... | Gharwal.                          |
| 1884 | ... | ... | ... | Kumaon.                           |

10. *Definition.*—Plague, or bubonic fever, may be defined as a specific contagious fever closely resembling typhus in its symptoms, but distinguishable from it by the absence of any true rash, by the development of buboes, and by the presence of a specific bacillus.

11. *Causation.*—The symptoms of plague are due to the presence in the body—lymphatic glands, blood, spleen, lungs of an inoculable micro-organism, viz., the plague bacillus. The bacillus is very sensitive to heat, light, and fresh air; hence plague, like typhus, would appear to be essentially a filth disease. The micro-organism is a short, rod-like bacillus, which was discovered by Yersin and Kitasato independently in 1894. Its characteristics will be subsequently referred to.

12. *Incubation.*—From observations made at the Parel Hospital, Surgeon-Captain G. S. Thomson gives the period of incubation at from two to eight days. The average incubation period may be taken to be from 3 to 5 days. For purposes of control, the International Sanitary Conference have decided that the disease must be deemed to have an incubation of ten days.

13. *Symptoms and progress.*—Surgeon-Captain Thomson, from his experience at the Parel Hospital, states:—

In the majority of cases brought to the Parel Hospital, the onset was sudden. There were no premonitory symptoms, the patient being often suddenly struck down whilst at work.

The first symptom noticed was often a chill or rigor, followed by fever  $102^{\circ}$ , headache, nausea, vomiting, apparently of central origin and affording no relief, the vomited matters consisting chiefly of bile. Pains in the limbs, muscular weakness and prostration quickly followed. The pulse was rapid, weak and irregular (100–120); the respirations hurried and shallow (20–30). The tongue was usually an early indication of the disease, quickly becoming thickly covered with fur on the dorsum, whilst the tip and edges remained clear or assumed a bright red appearance. In a certain number of cases it was enlarged and appeared too big for the patient's mouth. There was a peculiar sour and earthy smell about the breath. The skin was hot, dry, non-perspiring and attended with a peculiar earthy odour, most marked in the general septicæmic cases. The conjunctivæ were frequently injected. The bowels were constipated. As the disease progressed, the patient lay on his back taking little interest in his surroundings with a dull apathetic stupid look, eyes half opened and very seldom completely shut—in a condition of mental hebetude. Slight deafness was often present, questions were replied to slowly, and the answers only partially given; conversation appeared laborious. Sleeplessness was complained of, and delirium followed by stupor and coma rapidly supervened.

The characteristic swelling of the lymphatic glands—buboes—made appearance between the second and fifth days, most commonly on the second day, occasionally within twenty-four hours of the appearance of the initial rigor. They were commonly situated in the groins (inguinal or femoral region), axilla, neck, or in more than one of these situations.

15. The buboes differed markedly in size; generally they were at first small, but rapidly enlarging reached their maximum on the eighth day, and subsequently, if the patient survived, either suppurated or resolved,

the process of resolution being slow<sup>d</sup> and prolonged. The number and size of the buboes afforded no indication of the security of the case. Occasionally the buboes were the seat of intense inflammation accompanied by much surrounding œdema; these cases were generally fatal. Marked tenderness was usually present at some period of the course of the bubo, not necessarily, however, on its first appearance. Dr. Dallas states that often in a case in which a bubo cannot at first be felt, marked tenderness is present over the site of its subsequent development.

In none of the 250 cases treated at the Parel Hospital did a carbuncle occur. Thomson states: "In a few instances the entire buboes with portion of the surrounding tissue sloughed *en masse*, leaving a large cavity which, if the patient recovered, healed slowly by granulation. This sloughing was, however, invariably due to the irritation following the application of marking nut (*Semicarpus Anarcardium*) or other native medicine before the patient's admission to hospital. These cases might possibly have been mistaken for carbuncles but their history was clear." Dr. Dallas (Grant Road Hospital) has stated that amongst three hundred cases of plague, in only two cases were carbuncles met with.

Petechiæ on the surface of the body were not observed. The delirium was of a low muttering type, the patient at the worst merely trying to get out of bed. Cases of violent delirium, necessitating the patient being held down by several assistants, did, however, occur, more specially in the earlier part of the epidemic.

The urine was of a febrile type, and slight amount of albumen was present in the majority of the cases during the febrile state, and occasionally hyaline casts; occasionally hæmaturia occurred (Dallas). Suppression of urine was not met with. Retention occurred only thrice amongst two hundred and fifty cases (Thomson).

16. *Fever*.--The temperature at the onset varied between 102°—105° and occasionally rose higher. Fatal cases were, however, met with in which the temperature never rose above 100°. If the patient survived so long, the temperature usually fell after the 7th day, and remained subnormal for the first week of convalescence.

17. *Pulse*.--The chief characteristic of the pulse was its feebleness, due to the extreme weakness of the heart's action; death from syncope was common, and occurred with startling rapidity.

At the onset of the disease constipation was present in the majority of the cases. Occasionally cases of diarrhœa were met with, and, in a few instances the motions were stained with blood (Dallas).

Pregnant women, in whom conception had not advanced beyond the third month, recovered or died according to the severity of attack from which they were suffering, without the pregnancy appearing to affect the result in any way. Women advanced in pregnancy invariably aborted and died. In such cases the fœtus showed hæmorrhagic petechiæ in the usual situation, but on bacteriological examination no plague bacilli were found in the petechiæ.

The fact of menstruation occurring during the course of the disease was said to greatly heighten the gravity of the case and lessen the chance of recovery.

The following complications were noted: broncho-pneumonia, pneumonia, dysentery and meningitis.

Amongst sequelæ the most frequent were boils, lymphangitis, abscess, aphasia, dysentery, diarrhœa, anæmia, conjunctivitis, ulcers of the cornea, panophthalmitis, dementia.

18. *Relapse*.—In a few cases, what appeared to be a relapse occurred, viz., the pulse and temperature rose, the distress returned, and a fresh set of lymph glands were found to be swollen and enlarged. An examination, however, rendered it doubtful if these were true cases of relapse, as the enlarged glands were simply those of the same lymphatic chain situated somewhat nearer the main lymphatic system, and the symptoms were capable of being explained by a late sympathetic inflammation of the glands having been caused by undue exertion or too early movements of the patients.

19. *Recurrence*.—No patient who had suffered once during the present epidemic has up to date been proved to have had a recurrence of the disease. A case, however, occurred in which an European lady, who had suffered from plague in Hong-Kong, again contracted the disease. The second attack ended as the first—in recovery.

As the number of observations of the various scientific Commissions increased, it became evident that at least three forms of the plague could be distinguished, possibly a fourth:—

- I. The “bubonic” form. This was most frequent, and was characterised by great enlargement of lymphatic glands.
- II. The “septicæmic” form, characterised by the absence of any obvious enlargement of lymphatic glands and by the presence of high fever, delirium, and early collapse (German Commission).
- III. The “pneumonic” form, in which there was no obvious enlargement of the lymphatic glands, but in which the symptoms of broncho-pneumonia were present (Childe).
- IV. The “intestinal” form? Only one case of this possible form was brought to our notice, but symptoms were so characteristically intestinal that it is possible that further observations will show that it belongs to a separate class. Briefly, the case was that of an European, whose illness began suddenly with fever—frontal headache—sleeplessness and delirium. The tongue was furred, gurgling and tenderness in the right iliac fossa were present, and several ochre-coloured diarrhœic motions were passed in the 24 hours. Tympanites set in, and the case progressed to a rapidly fatal issue. Prior to death buboes appeared in both inguinal regions.

The "Bubonic" variety has already been referred to. The "Septicæmic" variety was extremely fatal. In these cases the symptoms of an acute septic infection were present, without any obvious primary lesion. The truth of the diagnosis was proved by bacteriological examination and the discovery of the plague bacillus. Of six such cases treated at the Parel Hospital, five died.

The "Pneumonic" variety, which in the early part of the epidemic was not recognised, was also extremely fatal. Of seven such cases treated at the Parel Hospital, all died. This primary pneumonic plague of Child must be carefully distinguished from the secondary pneumonic cases, *i. e.*, primary bubonic cases of plague in the course of which pneumonia develops as a complication much as it may do in the course of any acute specific fever. In these cases there was the same preliminary rigor followed by fever, nausea, vomiting, headache, and pain in the limbs; but instead of a bubo developing, the symptoms of a low form of broncho-pneumonia or bronchitis, supervened. The physical signs in the lungs were at no time well marked, whilst the prostration and general weakness were out of all proportion to the apparent extent of the mischief in the lungs. This is probably the most dangerous form of the plague known, *i. e.*, fatal to the patient and dangerous to healthy individuals. The patient's sputum is practically a virulent pure culture of the plague bacillus. The late Dr. M. died of this form of plague as did also the nurse who attended on him. Two ward boys at the Parel Hospital died of this form of the disease contracted by smoking the hookah of a plague patient. This form of plague is undoubtedly highly infectious. As regards the bubonic form, the infectivity would appear to be but slight, provided the patient is confined in a roomy and airy compartment such as a hospital. Friends were freely allowed to visit plague-stricken relatives in all the hospitals, and no evil result followed so far as could be ascertained. With a few exceptions the nurses, ward boys, and sick attendants generally escaped the disease. One of these exceptions, *viz.*, two ward boys at Parel Hospital, has already been alluded to; another exception occurred at the Grant Road Hospital. In this case also the victim was a ward boy, who was in the habit of drinking the dregs of the stimulant mixture left by plague patients. He contracted the disease, and numerous plague bacilli were found in his blood. Under treatment his temperature fell to normal, and he became convalescent. Unfortunately, with the assistance of his wife, he surreptitiously obtained a large meal of curry and rice and died suddenly of syncope shortly afterwards. At the Grant Road Hospital a plague-stricken mother suckled her child during the course of her illness, and the child did not contract the disease. At the Parel Hospital a healthy mother suckled her plague-stricken child. The child died, whilst the mother was not infected. Two brothers, one of whom was suffering from plague, slept in the same bed, and continued to do so throughout the illness. The sick boy recovered, whilst the healthy boy did not contract the disease.

20. *Age and sex.*—The majority of hospital patients were men. We

saw few females of marriageable age during our inspection, and hardly any children. Hence it is not probable that the true incidence of the disease on age and sex will be forthcoming from hospital statistics. It must be remembered in this connection that the disproportion of the sexes in Bombay as in other large Indian cities is very great, viz., 518,000 males to 303,000 females, practically 5 to 3. Moreover, amongst those who left the city during the early months of the epidemic, doubtless a large number were women and children sent away for safety. To the facility with which children could be concealed from the search parties must also partly be ascribed the fewness of their number in the hospital registers, rather than to the supposition that they escaped the disease. Of 200 cases treated at the Grant Road Hospital, 67, or 33·5 per cent., were females, and 133, or 66·5 per cent., males. Of this number, 12 only, or 6 per cent., were under the age of 10 years.

21. *Morbid Anatomy.*—On *post mortem* examination the blood was found to be dark in colour, fluid, or imperfectly coagulated. The affected gland or glands were enlarged, softened, and hæmorrhages were present in their substance. The surrounding cellular tissues were infiltrated with blood. On section the gland presented a dark brown or purple appearance, the result of the hæmorrhage, and occasionally points of suppuration were seen. When prepared, sections of the gland showed the presence of numerous plague bacilli, whilst from the fluid exuding on section almost pure cultures of plague bacilli could be obtained by growth on agar agar. In addition to the affected gland, the glands of the abdomen and thorax were often found enlarged. The vessels of the stomach (cardiac end) and ileum were injected, and numerous small hæmorrhagic petechiæ were seen in their immediate neighbourhood beneath both the serous and mucous coats. Petechiæ were also frequently seen on the surface of the liver, pericardium, pleura and meninges. Occasionally hæmorrhages were seen in the perinephritic cellular tissue. The heart was invariably found healthy. The liver and spleen were occasionally slightly enlarged. In the lung cases there were usually one or more small patches of pneumonic consolidation in stages, slight pleuritic inflammation over these, and a considerable quantity of sero-sanguinolent fluid in the bronchi, which were congested. Cultures from the spleen, the blood, the affected glands, and pneumonic cases from the surface section of the pneumonic areas almost invariably showed an abundant growth of plague bacilli.

22. *Bacteriology.*—The bacillus of bubonic plague was discovered independently by Yersin and Kitasato in 1894 during the epidemic of plague then raging in Hong-Kong. It has been found in the softened contents of the glands, the blood, spleen, the lungs, the sputum and also, it is stated, in the urine and fæces of plague patients. The bacilli consist of short oval rods, which stain more distinctly at the end than in the middle, and hence resemble diplococci. It occurs singly in dumb-bells or in chains. It does not form spores nor liquefy gelatine and is non-motile. It is killed by a

temperature of 60°C in five minutes (Klein) or by exposure to a temperature of 80°C (Kitasato). It can be grown on artificial culture media, agar agar, blood serum and in gelatine and bouillon. Inoculated into mice, rats, guinea-pigs and rabbits, it produces acute hæmorrhagic, septicæmic infection and death. On agar agar the growth forms a whitish grey, slightly iridescent colony, with a bluish tint by reflected light; the small colonies resemble little tufts of glass wool. On gelatine the colony is light brown and finely granular.

The German Commission on Plague report (*Deutsche Medicinische Wochenschrift*) in the great majority of cases it was found that the bubonic virus penetrated into the human body through small lesions of the skin. The glands of the neighbourhood then began to swell, and when the quantity of virus absorbed was not too large, they were able to retain and to destroy it. When the bacilli were present in large quantities, they made their way through the lymphatic glands, and were then found everywhere in the blood and in the internal organs. This was the typical form of bubonic septicæmia: when a gland suppurated, the bacilli might be removed from the body, but a dangerous septicæmia caused by streptococci might result. The bubonic bacilli were present in large quantity in the patient's urine and fæces, and in this way the virus might become diffused. In another group of cases the virus was apparently absorbed by the lungs, and, under the circumstances, primary pneumonia was commonly found, the lungs containing plague bacilli together with diplococci and streptococci. It is obvious how dangerous the sputum of such patients must necessarily be. Primary infection from the intestinal canal was not observed in any instance, but sometimes it appeared to arise from the tonsils. For the purposes of a bacteriological examination, it was not sufficient to take a single drop of blood from the finger, as this method gave a satisfactory result only when the bacilli were present in a very large quantity. An agar culture must be made in doubtful cases; the colonies were usually developed after forty eight hours. The bubonic glands should not be punctured for diagnostic purposes because of the risk of admitting the virus into the blood vessels. If blood serum obtained from persons or animals convalescent from plague was mixed in test-tube with a culture of plague bacilli, it had a specific influence on them. Culture of other bacteria treated in this way became opalescent throughout their whole extent, but the plague bacilli formed small coagula, which, in course of time, fell to the bottom of the test tube, leaving the supernatant fluid clear. This precipitation of the bacilli was identical with that observed in the case of enteric fever and cholera, and led to the inference that artificial immunisation against plague might be possible.

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THE DUTIES OF A MEDICAL OFFICER OF HEALTH,  
WITH SPECIAL REFERENCE TO THOSE OF THE  
HEALTH OFFICER OF CALCUTTA.

THE appointment of medical officers of health for whole communities is quite of recent origin. In England it does not date back beyond half a century. The first medical officer of health was appointed for Liverpool in 1847 under, and immediately after the passing of, the Liverpool Sanitary Act in 1846. The gentleman so appointed was Dr. Duncan of that city. The second was Sir John (then Mr.) Simon who was appointed for London in 1848 under the City Sewers Act of that year.

The instructional minute issued by the General Board of Health in 1848, indicating the duties of medical officer of health, shows that the Board's ideas of those duties were correct and comprehensive, and that our recent ideas are but an amplification of those of 1848, necessitated by the advance of knowledge of the etiology of infectious diseases. It is, therefore, instructive to see what were required of the medical officer of health fifty years ago. As summarised by Messrs. Stevenson and Murphy in their work on Hygiene and Public Health, these requirements were as follows:

"He (the health officer) should make himself familiar with the natural and acquired features of the place to which he was appointed ; with the levels, inclination, soil, wells, and water springs of the district ; with its meteorological peculiarities ; with the distribution of its buildings and open spaces, and of its burial grounds ; with its industries ; with the house accommodation of the poorer classes and their opportunities for personal cleanliness ; and with the regulations in force for lodging houses and slaughtering places, for the cleansing of the place, and for the removal of domestic refuse. He was also to obtain information as to disease prevalence, and as to the extent of its dependence upon removable causes. It was held that for the proper performance of his duties he was to be skilled in pathology, because this science implied an exact study of the causes of disease in their relations to the living body. A knowledge of vital statistics was held to be necessary for the purpose of enabling proper comparison to be made which would give evidence of the effect of various conditions on the population. He was to be skilled in chemistry and the use of the microscope for the purpose of judging of the impurities of air, earth and food, and his chemistry was to help him in the application of deodorising and disinfecting agents. And natural philosophy was to aid him in its relation to ventilation and atmospheric changes, and with reference also to manufacturing processes alleged to be hurtful to health."

As in all recognized medical schools (we believe there are no unrecognized medical schools) in England Hygiene (as variously designated sanitary science, public health, or State medicine) is taught as a separate branch of study, the qualifications of a medical officer of health need not be described in detail. All that is required is that he should be a legally qualified practitioner of medicine, surgery, and midwifery, and in addition be registered in the Medical Register as the holder of a diploma in sanitary science, public health, or State medicine.

In order to guard against indifferent diplomas the General Medical Council has declared "that it will not consider diplomas to 'deserve recognition in the Medical Register,' unless they have been granted under such conditions of education and examination as to ensure (in the judgment of the Council) the possession of a distinctively high proficiency, scientific and practical, in all the

branches of study which concern the public health; and the Council, in forming its judgment on the conditions and examination, will expect the following rules to have been observed:— (1) A period of not less than twelve months shall elapse between the attainment of a first registrable qualification in medicine, surgery, and midwifery, and the examination for a diploma in sanitary science, public health, or State medicine. (2) Every candidate shall have produced evidence of having attended, after obtaining a registrable qualification, during a period of six months, practical instruction in a laboratory approved of by the body granting the qualification. (3) The examination shall have been conducted by examiners especially qualified, and shall combine laboratory work, as well as written and oral examination.”

With these qualifications a man may be expected to form a competent medical officer of health. But as it has been very justly observed that “it is possible that the man best qualified as to knowledge, may by infirmities, either of body or of temper, make a very indifferent officer, since it is a post requiring a knowledge of the world, a robust body, and sound judgment, as well as the special acquirements mentioned above.” Hence sound health and sound common sense are essential in one who is to be the guardian of health of a community. These personal qualifications are deemed so essential to the success of a medical officer of health, that Dr. Alfred Ashby, himself a distinguished officer, has, in the article he has contributed on the subject to Stevenson and Murphy’s *Treatise on Hygiene and Public Health*, given quite an elaborate list of these qualifications from which we extract the following as peculiarly applicable to our own case in Calcutta:—

“Since he is not so much an executive officer as he is the adviser of the local authority appointing him, on all matters pertaining to his office, he must be prepared from time to time to accept with equanimity the rejection of any advice he may have tendered to them, however sound it may have been. He must not be too sensitive in the event of his advice or actions being misunderstood or even misconstrued, if he is conscious of having been actuated by proper motives.”

“He must not advise lightly, hastily, or inconsiderately on any matter but only after due deliberation, and must put himself in a position to be able to stand by and, if necessary, to defend his

advice, since it may be the initiative of legal proceedings. Hasty or ill-considered advice, thoughtlessly given, would disparage him and diminish his influence with the public, as well as with the local authority.

"Having advised conscientiously and to the best of his abilities he has discharged his duty, and if his advice is not followed he must bear in mind that the decision of the authority may have been subject to considerations and influences which had no weight with him. If, on the other hand, he finds that his advice is systematically and persistently ignored by the authority, and that the public health in his district is likely to be prejudicially affected in consequence, he must repeat it, again and again if need be, firmly but dispassionately. His advice on all matters of importance should be tendered to the local authority in writing, with a view to future reference.

"He should regard all questions he has to deal with from the view-point of the local authority, the owners and occupiers of premises, and the public, as well as from that of the medical officer of health intent upon the health-improvement of his district.

"He must be possessed of good judgment, discretion, and tact, for he will have various and varied persons and matters to grapple with; from this it follows that the larger, wider, and more varied his experience in his special branch of the profession may be, the better able will he be to perform with efficiency the duties pertaining to it.

"He should possess an even temper, as he will find it will frequently be tried. If of an irritable or excitable temperament, he must train himself to control it; it is of the utmost importance that not one of his official actions or expressions should savour in the remotest degree of resentment or vindictiveness.

"He must be patient and persevering, since his efforts should be directed to the accomplishment of his objects by persuasion rather than by compulsion. He must endeavour to educate rather than to force public opinion, seeing that little good is to be done by attempting to go much in advance of that in regard of matters pertaining to the public health.

"He must not be impulsive, but must be methodical, exact, and punctual in all his dealings, and must conduct the business of his department in a manner that will not cause friction with

any other department connected with the local government of his district. He must show courtesy and respect to every member of the local authority."

If such are the moral qualifications necessary in a health officer in England where the knowledge of personal and of public hygiene is so much diffused among the people, how indispensable they must be in this country where private hygiene is in its primitive state and public hygiene is almost unknown. We are here reminded, and we would beg to remind every go-ahead sanitarian, of what Lord Elgin said at the Indian Medical Congress held in December 1894. "I hold very strongly," said His Excellency, "that in sanitary matters, as in many others, the best way to secure real progress is to begin by forming a public opinion in its favor, and that action in advance of, and in opposition to, public opinion, is often apt to retard, rather than promote the cause we have at heart." "Some things, of course, we must insist upon, but where there is a fair question of expediency—where the difficulty comes from religious feeling, local customs, financial pressure, or even personal prejudice, I believe there is only one safe rule which I ventured to define, to a friend who once asked my advice in a case of the kind, as 'unlimited patience.'"

As regards the duties of a medical officer of health the Local Government Board of England have drawn them up under 18 heads, of which we give below the ten first as duties proper, the remaining eight being duties relating to attendance at office, submission of reports, &c. If for Sanitary Authority be substituted the Corporation of Calcutta, we have a very fair list of the duties of the Health Officer of Calcutta.

(1) He shall inform himself as far as practicable respecting all influences affecting or threatening to affect injuriously the public health within the district.

(2) He shall inquire into and ascertain by such means as are at his disposal the causes, origin, and distribution of diseases within the district, and ascertain to what extent the same have depended on conditions capable of removal or mitigation.

(3) He shall by inspection of the district, both systematically at certain periods, and at intervals, as occasion may require, keep himself informed of the conditions injurious to health existing therein.

(4) He shall be prepared to advise the Sanitary Authority on all matters affecting the health of the district, and on all sanitary points involved in the action of the Sanitary Authority; and, in cases requiring it, he shall certify, for the guidance of the Sanitary Authority or of the justices, as to any matter in respect of which the certificate of a medical officer of health or a medical practitioner is required as the basis or in aid of sanitary action.



(5) He shall advise the Sanitary Authority on any question relating to health involved in the framing and subsequent working of such bye-laws and regulations as they may have power to make, and as to the adoption by the Sanitary Authority of the Infectious Disease (Prevention) Act, 1890, or of any section or sections of such Act.

(6) On receiving information of the outbreak of any contagious, infectious, or epidemic disease of a dangerous character within the district, he shall visit without delay the spot where the outbreak has occurred, and inquire into the causes and circumstances of such outbreak, and in case he is not satisfied that due precautions are not being taken, he shall advise the persons competent to act as to the measures which may appear to him to be required to prevent the extension of the disease, and take such measures for the prevention of disease as he is legally authorised to take under any statute in force in the district or by any resolution of the Sanitary Authority.

(7) Subject to the instructions of the Sanitary Authority, he shall direct or superintend the work of the inspector of nuisances in the way and to the extent that the Sanitary Authority shall approve, and receiving information from the inspector of nuisances that his intervention is required in consequence of the existence of any nuisance injurious to health, or of any overcrowding in a house, he shall, as early as practicable, take such steps as he is legally authorised to take under any statute in force in the district, or by any resolution of the Sanitary Authority, as the circumstances of the case may justify and require.

(8) In any case in which it may appear to him to be necessary or advisable, or in which he shall be so directed by the Sanitary Authority, he shall himself inspect and examine any animal, carcase, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, or milk, and any other article to which the provisions of the Public Health Act, 1875, in this behalf apply, exposed for sale, or deposited for the purpose of sale or of preparation for sale, and intended for the food of man, which is deemed to be diseased, or unsound, or unwholesome, or unfit for the food of man; and if he finds that such animal or article is diseased, or unsound, or unwholesome, or unfit for the food of man, he shall give such directions as may be necessary for causing the same to be dealt with by a justice according to the provisions of the statutes applicable to the case.

(9) He shall perform all the duties imposed upon him by any bye-laws and regulations of the Sanitary Authority, duly confirmed where confirmation is legally required, in respect of any matter affecting the public health, and touching which they are authorised to frame bye-laws and regulations.

(10) He shall inquire into any offensive process of trade carried on within the district, and report on the appropriate means for the prevention of any nuisance or injury to health therefrom.

It will be seen from the above that personal inspection is the basis of all the primary duties of a medical officer of health. Hence the necessity of a "robust body." The man, whose health will not permit him to inspect, if necessary, at any time of the day, any the most insanitary part of his district, ought not to be a health officer.

The Calcutta Municipality, or the Corporation of Calcutta as by law it is designated, has been unfortunate in the matter of its health officer, ever since it has come into existence. Till the appointment of the last health officer, the post was filled by

men from "the service," who had to perform the duties of health officer of this vast city in addition to their other numerous and more pressing duties. These men, therefore, could not possibly give sufficient time and due attention to their duties as health officer for which they used to be paid large sums of money as fixed salary.

The perfunctory manner in which they performed their duties to the Corporation could not escape the notice of the public, and accordingly a Health Society was formed in Calcutta under powerful auspices to watch over the sanitation of the Town, which chiefly meant keeping a strict vigilance over the doings of its Health Officer. The result was a perpetual warfare between this society, and the Municipality or rather its Health Officer, which ended in forcing the Corporation to appoint a medical man who would give his undivided time and attention to his duties, and would do nothing else.

Convinced of the necessity and importance of having a whole time health officer for the Corporation, we did our best, as one of its members, to secure as good a man for the post as we could possibly get. From the published list of candidates with their qualifications we thought Dr. W. J. Simpson of Aberdeen was the most eligible person, and accordingly we proposed him for election, and had the satisfaction to find our proposition carried. In the course of our speech, at the meeting of the Corporation on the 11th Feb. 1886, in making the proposition, among other things we said :

"It would be impertinent in me to remind you, Gentlemen, that sanitation is now no longer a haphazard affair, based upon unintelligible, empirical rules ; that it has risen to the dignity of a science, based upon physiology, pathology and etiology, in other words, upon the laws of life in its normal and abnormal conditions. A thorough practical knowledge of chemistry, and a thorough practical mastery in microscopic research, are a *sine qua non* in a sanitarian. And you need not be told that special training in these practical investigations is absolutely necessary for a sanitary officer. We require an officer who is already master of these, and not one who may learn them at our expense if appointed to the post. We require an officer who every day will have to conduct chemical analyses of our foods, of our

waters, of the air we breathe, of the gas we burn, and who will have to apply the microscope for the detection of the germs of disease in our foods, waters and air, in our soil and in our drains. We require an officer who, from his sound practical knowledge and experience, will be able to steer clear of what Dr. Letheby has very pointedly and very properly called "the unchecked fancies of visionary alarmists," on the one hand, and "the more mischievous opinions of sensational agitators," on the other. You know, Gentlemen, what an Augean stable is the health department of our municipality, as if in perfect keeping with the insanitary condition of the Town itself. We require an officer who will have the herculean task of clearing that department by his firm determination to see every thing with his own eyes, which we can only expect from a man who has done similar work before. We require an officer who will have to effect a thorough reformation of our vital statistics which, as the work of the veritable ignoramuses at our burning ghats, and of our Police officers, I cannot too emphatically condemn as worse than solemn farces."

Dr. Simpson was duly appointed, and so long as we enjoyed the membership of the Corporation we did our best to help him in establishing a municipal Laboratory for chemical analysis and microscopical research which at the time, in common with Sanitary authorities in England, we thought, formed part of the duties of a health officer. It is no small satisfaction to us to have to bear testimony to the excellence of the Laboratory, as Dr. Simpson has left it, which without exaggeration may be said to be the best of its kind in India. Opinion has since changed in England as regards this part of a medical officer's duty, and while it is expected that he should be familiar with chemical and microscopical analyses, he is not required to carry on these investigations in order that he may devote his whole time and attention to his duties proper as mentioned above. The laboratory should not, however, be abolished, but maintained as it is, worked by trained assistants under the supervision of the health officer which, we think, he can easily exercise without neglecting his primary duties.

Dr. Simpson has retired after having filled his post for eleven years. We cannot now enter into a critical review of the way he fulfilled his duties. We may do this in a future number. We

would only just notice there are two extreme opinions about him. According to one opinion he was a model health officer, according to the other he was a failure. Those who hold the latter opinion have been untiring in heaping abuse and ridicule upon our devoted head, for having been responsible for his appointment. We have borne this quietly, for we believe that, as usual with the opinions of the world, the truth lies between the extremes. We believe he was a man of excellent parts, and he would have done much better if he had a more robust health so as to enable him to do more out-door work, seeing things with his own eyes, trusting himself more than his subordinates; if he had not allowed himself to be beguiled by the flattery of his too partial friends; if he had not devoted a good portion of his time to matters not pertaining to his immediate duties, such as experiments for the verification of unproved theories; above all, if he had been more conciliatory and less immoderate in his language.

The retirement of Dr. Simpson has left the post of Health Officer of Calcutta vacant. We believe the Corporation of Calcutta has put in advertisements in the Indian and foreign Journals for a competent successor. And we sincerely trust the successor will be really a competent man not only by his theoretical and practical knowledge, but also by the moral qualifications which we have thought it our duty to place before the Indian public as understood in England, qualifications which the example of Dr. Simpson has emphasised as a *sine qua non* in a health officer in any part of the world, and more especially in a health officer of an Indian city, and that city the metropolis of India.

## ANSWERS TO QUESTIONS CONCERNING HOMŒOPATHY.

Under the above title we have received, from the publishers, Messrs. Boericke & Tafel, a neatly got-up pamphlet of twenty pages by Dr. J. T. Biddle, A.M., M.D., of Monongahela City, Pa., United States, which we think ought to be widely circulated. The price being only 5 cents for a single copy and \$4 for 100 copies, every missionary of homœopathy (and we think every believer in homœopathy is or ought to be one) should distribute as many copies as he can, in order to disseminate true ideas concerning the system as an antidote to the false ideas with which

members of the old school are never tired of poisoning the public mind and the minds of credulous patients. We give below the Twelve Questions to which Dr. Biddle has given proper answers :

1. What is Homœopathy ?

2. Is disease curable in this manner ?

3. How do its practical results compare with those of the Old School ?

4. Is Homœopathy able to cope with serious diseases, or is it, as some say, only applicable to slight ailments of children and delicate women ?

5. How popular is Homœopathy ?

6. How can such small doses as are generally given do any good ? It does not seem reasonable.

7. How about the "little pills ?" Some Allopaths say you give nothing but sugar.

8. Are the so-called "Homœopathic specifics" on sale at drug stores really genuine Homœopathy ?

9. Dr. "So & So" says he practices either system ; is that possible ?

10. Is the public a competent judge as to the merits of a system of medicine ?

11. What is the comparative cost of Homœopathic treatment ?

12. If all these things be true, why has not Homœopathy been universally accepted ?

The following extract, which forms the answer to question 11, will give our readers an idea of the way in which Dr. Biddle has performed his task.

"The best is the cheapest" at any price, but in this case the best costs the least money. Homœopathic treatment saves drug bills and shortens sickness. Those receiving it recover more completely and naturally, so that, other things being equal, they are less liable to be sick again.

"It does not leave the system saturated with poisonous drugs, which render a long, tedious convalescence requiring 'wine and bark.' The effect of large doses of medicine do not leave the system quickly ; in fact, some never leave it, and years after the patient wonders why she has such poor health. She never once dreams that her whole trouble is a drug disease which has become chronic from repeated dosing.

"How often has not this case occurred in Allopathic practice—a patient is suffering from cough, medicines called expectorants are prescribed; at the next visit the cough is somewhat relieved, but the expectorants have unfortunately produced nausea and the appetite is gone; mineral acids are next ordered to improve the tone of the stomach and to restore appetite; at the following visit the appetite is better, but the acid has irritated the mucous membrane of the bowels and has produced a diarrhœa; to check this astringents must be given, which have occasioned by the time of the next visit a return or aggravation of the cough, and thus the round has to be recommenced. Truly, this is expensive to the health as well as to the purse; and such things simply cannot happen in Homœopathy."

At the end of the pamphlet the author has given statistics from various hospitals in America and Europe which ought to convince even the most sceptically disposed of the vast superiority of the New over the Old school method of treatment. And we have no doubt, as the author and every believer in homœopathy believe, that "the conclusion arrived at by the anxious but patient and persevering inquirer" can be no other than—"*That Homœopathy is a boon to mankind from the Giver of all good, and that it is to his interest to embrace it and to advocate its cause to the best of his ability.*"

#### PREVENTIVE MEASURES AGAINST THE PLAGUE.

Dr. R. Sen, the Officiating Health Officer of Calcutta, has issued the following advice to house-holders for the prevention of the Plague. The rules here given are substantially the same as those put forth by Dr. Simpson on Sept. 29th of last year, with the addition of rules 2 and 8. While we would strongly commend them to all inhabitants, house-holder or not, of the town and suburbs, we would ask the Corporation not to sleep over their oars but to be up and doing also, and make up for their past neglect. By way of supplement we would add that the best and most powerful barrier we can oppose to the encroachment of the plague or any other contagious or infectious disease is the barrier of health. Hence the absolute necessity, at all time, and especially in times of epidemic visitations, of conserving the vital energies. For this end everything that tends to the lowering of vitality should be avoided. All foods which are

calculated to cause indigestion, all exercise which produce a severe strain upon the body or the mind should be avoided. For adults nothing is so de-energizing, and so certainly brings on all sorts of diseases in its train as loss and waste of the vital fluid *par excellence*—the secretion that accompanies the concourse of the sexes. Just as the loss of this fluid invites disease, its preservation arms the system with a power of resistance to all morbid influence which, as the intelligent and observant physician knows, is astonishing.

“As Plague is prevalent in the Bombay Presidency, it is very necessary that every house-holder of Calcutta, instead of being needlessly scared by the novelty of the disease, should take intelligent measures to prevent the disease from effecting a lodgment in this city, and for that purpose should strictly observe the following simple and easy rules:—

1. As overcrowding, bad ventilation and unclean condition of dwellings favor the prevalence of the disease, these conditions should be carefully avoided so far as possible.

2. An ordinary room 12 feet by 10 feet should not be used as a sleeping-room for more than 3 persons; and every room used as a sleeping or sitting-room should be well aired morning and afternoon if not throughout the day. No room without a window should be used for sleeping in.

3. The entire premises should be cleaned regularly every day and kept scrupulously clean.

4. All dirt and refuse matters should be deposited on the street in the early morning for removal by the Municipal carts.

5. All drains, surface and underground, latrines, urinals and other places in the premises where refuse matter is thrown, should be daily cleaned and liberally flushed with water mixed with a disinfectant, such as phenyle, pinophenol, carbolic acid or Jeyes' fluid, in the proportion of one pint to twenty pints. These disinfectants can be obtained from any bazar or druggist.

6. All rooms, godowns, kitchens and servants' quarters and latrines, &c., should be thoroughly cleaned and lime-washed, one of the disinfectants mentioned above being added to the lime-wash in the proportion of 1 pint to 20 pints.

7. All beddings should be daily aired, exposed to the sun and dusted, and all wearing apparel frequently washed and kept scrupulously clean and daily aired and exposed to the sun.

8. The master or mistress of the household should keep himself or herself daily informed of the health of members of the household.

9. If any case of fever with swellings in the groin, armpit, angle of the jaw, neck or elsewhere should occur in the house, a doctor should be sent for at once.”

## JUBILEE THERAPEUTICS.

By R. E. DUDGEON, M.D.

THE *annus mirabilis* of the "Diamond Jubilee," or sixtieth year of the reign of Queen Victoria, has instigated the allopathic medical periodicals, and more especially the *Lancet* and the *British Medical Journal*, to write more or less accurate histories of the progress of medicine since the commencement of the Record Reign down (or up) to the present day. During this long period great alterations have been witnessed in every department of medical science, and we all must agree that these alterations have in many cases been improvements, especially in the departments of surgery, pathology and hygiene. But it is with therapeutics that we are more particularly concerned. A change, a mighty change has been effected, chiefly, however, of a negative character. In 1837, and for many years thereafter, medical practice still employed as its chief methods of treatment blood-letting, mercurialisation, blisters, cauteries, setons, excessive purgation and other painful and debilitating methods which are now relegated to oblivion, and have been superseded by the tonics, hypnotics, antipyretics, and mild remedial measures of the present day. Our allopathic historians of this revolution omit to mention that the teaching and practice of Hahnemann and his school and the spread of a knowledge and experience of homœopathic treatment among the patient world were the immediate cause of the cessation of the traditional debilitating and painful practices of the dominant school. They also omit to state that many of the now popular remedies employed in orthodox practice were purloined from the homœopathic materia medica. But it was not to be expected that the partisans of so-called orthodox medicine would admit that the doctrines and practices of Hahnemann, which they have persistently maligned and denounced during all these years, have had any part in the production of the change that has taken place in the therapeutics of their own school.

While Sir William Broadbent, in an address to which attention was called in a late number of the *HOMŒOPATHIC WORLD*, asserts that the dawn of Scientific Medicine is only now commencing, the *British Medical Journal* refers that interesting event to a far distant period. It says: "With the advent of the sixteenth century medicine came first to be looked upon as a science, and



then, along with the other sciences, went forward by leaps and bounds. The great anatomists, physiologists, and chemists of this period, by patient observation and careful deduction, built up the foundation upon which medicine rose from an art to a science."

If by "medicine" the writer means "therapeutics," we must confess that to date its rise from an art to a science to "the advent of the sixteenth century" is ludicrously incorrect. We rather agree with Sir W. Broadbent that scientific medicine is not yet manifest in the dominant school, and we even doubt if there are any visible signs of its "dawn." Homœopathy alone, with its rule for the selection of the remedy founded on a well-authenticated law of nature, fulfils the requirements of science in its application to the cure of disease. But that, of course, upholders of traditional unscientific medicine will not allow.

And yet some of the latest developments of old-school therapeutics would seem to compel our opponents to acknowledge that it is in the direction of homœopathy that the much desiderated science of therapeutics must be sought. For hear what the *British Medical Journal* in the Jubilee article says: "A most remarkable development of therapeutics is the antitoxic method, whereby the disease itself is made to supply the instrument of its cure." That is to say, the virus of a disease modified by its transmission through healthy bodies becomes a remedy for that disease. This is a kind of homœopathy that has for many years been practised in our school; by Hahnemann himself in the case of psorin, and by many of his disciples who have successfully employed tuberculin, variolin, vaccine, and various other *nosodes*, as they are termed, as remedies for the diseases of which they are the products.

But the era of the Queen's reign has witnessed a more remarkable therapeutic novelty than any of those described by the historians of the *Lancet* and *British Medical Journal*. We allude to the administration of portions of the healthy glands or organs of animals, in cases where morbid states or defects of the corresponding glands or organs in sick human beings are presumed to be the cause of their diseases. If the anticipation of the advocates of this method are realised, medical practice will be completely revolutionised. The giving of drugs will be abolished, and all that the practitioner will need to do is to ascertain or to

guess what is the gland, tissue, or organ whose morbid or defective action is responsible for his patient's disease, and when this is done to administer portions of the corresponding gland or organ taken from a healthy animal.

We believe that to the late Professor Brown-Séquard must be given the credit of the introduction of this method. Towards the end of the eighties he announced that an extract made from the testicles of dogs and other animals hypodermically injected was a veritable elixir vitæ, and that it restored to old men the vigour of youth, like the fabled *Fontaine de Jouvence*.

The hypodermic method recommended by Brown-Séquard has been abandoned by his successors, and the organic remedies are now administered by the mouth. In this way the orchitic substance has been employed with, it is said, encouraging success in locomotor ataxy, hysteria, melancholia, neurasthenia, debility and impotence.

Thyroid gland substance has been used with marked effect in myxœdema, psoriasis, lupus, scleroderma, cretinism, obesity, alopecia, ichthyosis, eczema, pityriasis rubra, uterine cancer and fibroids. In cases of myxœdema, in which its effects are most apparent, the patient has to be fed continuously with the gland, otherwise the disease returns. Besides the diseases we have mentioned, the thyroid gland is recommended in goître, Graves's disease, acromegaly, xeroderma and tetanus. Dr. Hector Mackenzie gives us a list of its physiological effects: It diminishes bulk, increases the temperature, promotes the growth of hair, restores cutaneous functions, improves the intelligence, brings back suppressed menses, promotes a flow of urine, and causes the skin to desquamate. A wonderful remedy, indeed—quite a polychrest!

Red marrow is said to be specific for chlorosis, anæmia (even of the pernicious sort), and leucocythemia.

Supra-renal capsule is recommended in Addison's disease, splenic anæmia and diabetes insipidus.

Thymus gland is given for infantile marasmus, hypertrophic paralysis, goître, ordinary and exophthalmic, glandular enlargements with anemia, and is said to be a general tonic.

The pituitary body having been found diseased in that curious malady acromegaly, is accordingly said to be efficacious in that intractable affection. It is also advised in deficient brain power

and even idiocy, but whether it has been really serviceable in such affections is not very certain.

Ovarian tissue naturally comes as a remedy for diseases of the ovary, functional or organic. It is said to be useful after removal of the ovaries, or one of them. Its use is also advocated in functional or organic neuroses, melancholia, chronic mania and various other complaints.

Cerebrin, the grey substance of the brain, has, or ought to have, a wide sphere of beneficial action. Its use has been suggested in functional sclerosis, locomotor ataxy, epilepsy, alcoholism, insomnia, melancholia, neurasthenia, the effects of onanism, pseudo-hypertrophic paralysis, headache, loss of memory, anæmia, general debility, and the symptoms following ovariectomy.

Spleen substance is to be given after the removal of the diseased spleen, if the patient survives the operation—not otherwise. It is recommended in general debility, ague, splenic enlargements, rachitis, anæmia (simple and pernicious), oligæmia, lymphodermic phthisis, and for general tonic purposes.

Besides the above organic remedies, our enterprising chemists offer for our use preparations of the mucous membrane of the duodenum and intestines, the Fallopian tube, the mammary gland, the parotid gland, the pancreas, and the spinal cord, and will no doubt be happy to furnish us with bits of any organ or tissue taken from the *corpora vilia* of inferior animals we may wish to experiment with on the *corpora nobilia* of our patients.

These new organic remedies are usually prepared in the form of tabloids. Some chemists sell these tabloids simply compressed, and one covers them daintily with a coat of jujube. *Jubilee* remedies, one would think, ought to be *jujubilised*.

It is strange that our historians of medical progress during the sixty years of Her Majesty's reign should have hardly alluded to this marvellous therapeutic novelty. It is still in its infancy, but at the rate it is now advancing it bids fair to supersede entirely all drug giving, and to reduce or elevate therapeutics to the utmost simplicity, and, in the words of the *British Medical Journal*, "though it has not yet come to its season of mellow fruitfulness, it opens up possibilities undreamt of by our predecessors of 1837," or, we may say, by our predecessors of 1887.

The tissue remedies of Schüssler and the biochemical therapeutics of Ameke may be considered as foreshadowings of this

organic therapeutics, but as those systems only employed the chemical constituents of the body extracted at a considerable expenditure of time and trouble, they lack the simplicity and facility of the later method, which boldly feeds the patients on the healthy organs of animals for diseases supposed to depend on derangements or defects of the corresponding organs in the patients.

It seems rather a defect of the new system, that its implements of cure should be derived from animals the structure of whose organs may be supposed not to run on all fours (notwithstanding they are all quadrupeds) with human organs; but probably there are difficulties, not to mention prejudices, in the way of feeding patients on human tissues, as cannibalism is not now an institution of this country; though it is stated that certain practices observed among cannibal people gave Dr. Brown-Séquard the hint for his employment of the youth renewing injections.

Mummy, which used to form an ingredient in many of the composite prescriptions of two centuries ago, and grated human skull—by preference of a man who had been hanged—besides human fat and various se- and excretions of humanity figure as medicines in the old pharmacopœias. These may be regarded as the precursors of the “animal tissue therapeutics” of to-day, “not yet come to their season of mellow fruitfulness,” as the writer in the *British Medical Journal* eloquently puts it. A precedent for the employment of human as well as other animal tissues is furnished by Macbeth’s witches, whose hell-broth was concocted of—

“Fillet of a fenny snake,  
Eye of newt, and toe of frog,  
Wool of bat, and tongue of dog,  
Adder’s fork, and blind-worm’s sting,  
Lizard’s leg, and owlet’s wing,  
Scale of dragon, tooth of wolf,  
Witch’s mummy, maw and gulf  
Of the ravin’d salt-sea shark,  
Root of hemlock digg’d i’ the dark;  
Liver of blaspheming Jew,  
Gall of goat, and slips of yew  
Silver’d in the moon’s eclipse,  
Nose of Turk, and Tartar’s lips,  
Finger of birth-strangled babe,  
Ditch-delivered by a drab.”

But we do not know if medicinal effects were expected from this savoury concoction.

Poor old Physic! You arrogate to yourself the title of "traditional," while you despise and discard tradition; of "scientific," while, by your own confession, you have no scientific principles whatever; of "rational," and you can give no reason—or fifty different and contradictory reasons—for your treatment of any disease; of "regular," and you have no *regula* or rule for your employment of drugs; of "orthodox," and you have no creed. You talk of "the art of medicine," and you are incessantly changing the mode and the very implements of your boasted art. There is nothing fixed, nothing constant, nothing that can claim to be incontrovertible truth about your practice. It changes with every decade. During this comparatively short period of sixty years you have suffered as many revolutions as a Spanish-American republic. In the early years your treatment consisted of bleeding, counter-irritation, and purgation; then you relied mainly on expectancy, that is to say, doing nothing; this was succeeded by the era of alcoholic stimulation; then came the reign of tonics, narcotics, and antipyretics; and now it seems as though you would abandon drugs and seek salvation for your patients by ascribing their disease to the derangement of the function of some particular organ and feeding them on the corresponding organ of some healthy animal. You pursue with eagerness the *ignes fatui* of illusory hypotheses, which glimmer for a while but are soon extinguished; and you avert your eyes from the steady light of homœopathy which has been shining brightly for a hundred years to guide you to the truth in therapeutics. For these hundred years you have been maligning and misrepresenting homœopathy and persecuting its professors. Is it not high time that you reversed these tactics, and adopted in this the second century of homœopathy a treatment of it more in accord with the character of members of a scientific and liberal profession? An impartial examination of the doctrines and practice of Hahnemann, and a willingness to listen to the arguments and proofs of his followers in your societies and your periodicals, would tend to dispel your prejudices and convince you that homœopathy has a fair claim to be considered a scientific, rational, and successful mode of treatment, worthy of adoption, in whole or in part, by all practitioners who wish to do the best for their patients.—*Homœopathic World*, Sept. 1897.

## EDITOR'S NOTES.

**Ruptured Tubal Pregnancy Twice within a Year.**

Czeispin (*Centralbl. f. Gynäk.*, No. 28) reports that a woman, aged 33, had been barren for seven years after marriage. Then she became pregnant. On May 7th, 1896, she was operated upon for rupture of the pregnant right tube. The period returned, and ceased after November 7th. Violent pains set in at the end of last January. On February 1st there was collapse and left tubal pregnancy was diagnosed. On the 3rd abdominal section was performed. There were firm adhesions in the abdominal cavity, the result of the first operation, and a certain amount of clot. The tube bore a long rent occupied by the partly detached placenta, and there was free bleeding at the time. The fetus lay in the peritoneal cavity. The arrest of hæmorrhage and separation of the tubal sac from dense surrounding adhesions proved very difficult, but the patient recovered.—*Brit. Med. Journal*, Sept. 4, 1897.

**Operation for Tubal Pregnancy : Death.**

Blanc (*Archives Générales de Médecine* September, 1896) reports an abdominal section performed by Blum on a multipara, where a foetal sac of the left tube had ruptured, pelvic inflammation existing for some time. The right tube was full of blood, and it was thought right to remove it as well as the gestation sac. Free intestinal adhesions were detected and liberated. The pregnancy had lasted about two months; the patient had not suffered from melæna, vomiting, or other sign of disease in the gastro-intestinal tract. On the fourth day tympanites set in, and on the ninth the patient died with symptoms of acute peritonitis. A large perforating ulcer was found at the back of the small intestine at the junction of the duodenum and jejunum. It was a typical duodenal ulcer, but unusually wide, the perforation itself measuring nearly one inch in its widest diameter.—*Brit. Med. Journal*, Sept. 11, 1897.

**Precocious Maturity.**

Townsend (*Boston Med. and Surg. Journ.*, March 11th, 1897) reports the examination of a child 1 year old. She was fat and healthy; the breasts were enlarged, the nipples not developed; the hair on the pubes was a quarter of an inch long. Townsend observed the process of menstruation; about half a drachm of blood lay on her clothing. The child weighed 28 lbs. and was 30 inches in height. At birth she weighed 9 lbs.; when 4 months old she cut her first

tooth, and when examined had seven incisors. The breasts were seen to enlarge at the age of 3 months, and at 6 months blood issued from the vulva. The mother declared that the child had ever since then been regular every five weeks.—Morse (*loc. cit.*) observed a similar case; the infant menstruated at 9 months, and when examined—1 year and 3 months old—was quite regular. Her weight then was 36 lbs. (at birth it was 14 lbs.), her height 32½ inches. The breasts were very well developed, the nipples large with a dark pink areola. The cervix and uterus could be plainly made out on digital examination.—*Brit. Med. Journ.*, Sept. 11, 1897.

### **Prof. Fraser's further experiments on Bile against Serpent Venoms and Toxins of Disease.**

The following note from the Professor has appeared in the *British Medical Journal* for September 4, 1897:—

In a paper recently published in the *British Medical Journal* (July 17, 1897), in which it was shown that bile is able to prevent death from lethal doses of venom, the conviction was expressed that bile would be found also to possess antitoxic properties against the toxins of disease, such as of diphtheria, tetanus, etc. Experimental evidence in confirmation of this conviction has since been obtained.

Thus there was given by subcutaneous injection to a rabbit 0.15 c.cm. per kilo. of diphtheria toxin mixed with 0.05 gramme per kilo. of the dried bile of normal rabbits, and to a second rabbit also 0.15 c.cm. per kilo. of diphtheria toxin, but mixed with 0.025 gramme per kilo. of rabbit's bile. No remarkable symptoms were produced except a temporary rise of temperature, and both animals are now in good health (a month after the injections had been made), and both have gained in weight.

The toxin employed was kindly given to me by Dr. Noël Paton, Superintendent of the Research Laboratories of the Edinburgh Colleges. Portions of the same toxin were also injected without bile under the skin of three rabbits, one receiving 0.15 c.cm., the second 0.075 c.cm., and the third 0.05 c.cm. per kilo.; and all these rabbits have died, the first in from two to three days, the second in from eight to nine days, and the third in from ten to eleven days.

In the paper referred to it was shown that there is present in the bile of serpents a constituent or constituents, the process for whose separation was described, which possesses in a concentrated form the antidotal qualities of the bile itself. By a similar process there has now been separated from the bile of the ox a constituent which likewise possesses antivenomous qualities in a more powerful degree than

the original bile. Experiments with this product have as yet been made only on white rats. They show that slightly larger than the minimum lethal dose of Indian cobra venom can be rendered non-lethal when mixed with so small quantities of this ox bile product as 0.004 g., 0.003 g., 0.002 g., and 0.001 g. per kilo. These quantities, though small, are not, however, so minute as the quantities effectively anti-venomous in similar circumstances of the product derived from the bile of venomous serpents.

The evidence already obtained, no doubt suggesting extension and elaboration in various directions, seems, therefore, sufficient to establish that in addition to its generally recognised functions bile possesses the power of rendering inert such organic poisons as venoms and disease toxins.

### Death by Lightning.

The effects of lightning as it passes to earth through the body of a man vary within an astonishingly wide range. It sometimes happens that a person is killed outright without any symptoms or sign of injury. It may be that death is preceded by collapse, paralysis, or convulsion, usually there are marks where the current has entered or left the body, or clothes may have been scorched, or hæmorrhages may have occurred, and more than one case has been recorded where boots have been torn off the feet and nails driven out of the soles of the boots. Seldom does it happen that lightning leaves such appalling evidence of its transit as that disclosed at an inquest held at Hulford House, near Guildford, on Saturday last. The evidence showed that on the previous Wednesday there had been a single flash of lightning and a clap of thunder, and about half an hour afterwards Major Jameson was found lying on his face in a field quite dead. Around him, in a radius of several yards, were his clothes and boots, which had been torn and scattered about in an extraordinary manner. The lightning appears to have struck him on the right side of the head, tearing his cap to pieces and burning his hair off. It then passed inside his collar down the front of his body and both legs into his boots, which were torn to pieces, and then passed into the ground, making a hole about eighteen inches in circumference and three inches deep. His collar was torn to pieces, the front of his shirt was rent into ribbons, the jacket and under-vest were literally torn to shreds, and the knickerbockers he was wearing were stripped from him and scattered on the ground. His stockings and gaiters were similarly torn in pieces, and on the boots the lightning had a remarkable effect. They were burst open, some of the brass eyelet-holes were torn out,



nails were forced out and the soles torn off. The skin had been torn off the chest, and the right leg was torn and blackened; blood was issuing from the mouth and right ear. In connexion with this fatality two circumstances of a more or less unusual kind may be noticed. There is, first, the single lightning flash, neither preceded nor followed by others in the neighbourhood; and secondly, the fact that the person who was struck was "in the open." The latter comparatively seldom happens, perhaps because shelter is instinctively and perhaps unwisely sought. Here there was no warning and no time for this, and so, without any neighbouring object at hand to subdivide and share the discharge, the latter had only one route to earth—viz., the body of its victim. The wet or dry condition of the clothes is an important point in such cases. It often happens that in persons exposed to a thunderstorm the clothes are wet, and therefore afford a comparatively easy passage to any electric current. In the case above detailed the clothes were presumably dry, and therefore bad electrical conductors, and the destructive effect of the lightning would be in proportion to the resistance encountered in transit.—*Lancet*, Sept. 4, 1897. ,

### The Treatment of Sunstroke.

The New York correspondent of the *Lancet* has sent the following account of Sunstroke in that city and the various methods of its treatment to the number of the Journal for September 18, 1897 :

Sunstroke is the most prominent disease of this city during the session of extreme heat. The mortality has generally been excessive. A recent study has been made of the 805 cases treated in the various hospitals in 1896, which gives some interesting results. The ten days, Aug. 4th to Aug. 14th, include the period of the greatest intensity of the conditions causing sunstroke. There was excessive and prolonged high temperature with high humidity. Clinically the cases were divided as follows: (1) heat prostration; (2) the asphyxial form; and (3) the hyperpyrexial form. There were 247 of the first class; the temperature did not exceed 104° F.; all recovered. Of the second form there were 38 cases; they lost consciousness, but the temperature did not exceed 105°; all recovered. Of the third form there were 520 cases with 132 deaths; each one had a temperature of 105° or upward, and but few retained consciousness. The difference between the three classes was one of degree and not of kind. The majority of sunstrokes occurred between 2 and 5 P.M., and between 7 and 10 P.M. The fatal complications were meningitis, pneumonia, and exacerbation of chronic kidney disease. The cause of death in most cases was failure of the respiratory and cardiac centres. In

fifteen cases the changes in the nervous system were examined microscopically. All showed more or less changes in the chromophilic plaques of the ganglion cells. These plaques in some cells were changed in shape and were fewer in number; in some they appeared to be broken up or to have entirely disappeared. In three cases referred to there was universal exhibition of acute parenchymatous degeneration of the neurons of the whole neural axis. In the brain cortex and in the cerebellum the cells showed the same stages of degeneration. The spinal-cord cells were apparently not so extensively involved. These facts prove that there is a toxic cytotoxicity in isolation, or cell resolution of the nervons, which depended upon the condition of the body forces, the eliminative capacity of the body, and the duration of the poison. The treatment of the first class of cases was the same in the different hospitals—namely, rest in bed, cool sponge bath, an ice cap, and phenacetine for the headache. In the second class, or asphyxial cases, tub baths were given at 60° F., or sponge baths, or if coma and nervous symptoms required it the patients were put for a few minutes into the ice bath. In the third, or hyperpyrexial cases, hydrotherapy was employed in some form in all cases. It differed in application and in the temperature of the water. The records of mortality in the different hospitals furnish a fair estimate of the efficacy of the methods employed. The mortality among the patients treated with ice baths, and the bath continued until the temperature had fallen to about 103° or 102° F., varied in the different hospitals from 18 to 2.75 per cent. When in some cases the ice pack was used instead of the ice bath the mortality was 2.55 per cent. When the ice bath was given for ten minutes, irrespectively of the point to which the temperature fell so long as it remained above a safe limit, the mortality was 40 per cent. Among patients treated with the bath at from 50° to 75° F. the mortality was one-third. When the baths were given at 90° to 110° F., and reduced in about fifteen or twenty minutes to 72° F., the results did not seem so favourable as with the cold baths. Among the patients treated with a needle spray from a hose attached to the cold water faucet the mortality was 11.5 per cent. Cold packs followed by hot packs in 197 pyrexial cases gave a death-rate of only 5 per cent., or, counting 8 patients who died a week later, the mortality was but 9.13 per cent. The death rate of stroke, as given in Quain's Dictionary of Medicine, is from 41 to 50 per cent. In the entire number of cases of hyperpyrexia as recorded in the paper under consideration (540) the death-rate was 25.38 per cent. Therefore the treatment employed in the various city hospitals has given very satisfactory results. Briefly, the best treat-

ment seemed to be a needle spray; or ice bath, or cold pack, till the temperature fell to 103° or 104° F., followed immediately by a hot pack, with stimulants and sedatives as the physician's judgment might deem necessary.

### **Marconi's Experiments on Telegraphy without Wires.**

These experiments, which lasted three days, July 11, 12 and 13, were conducted on a large scale by order of the naval department, so that the full scope of the invention might be understood. On the 11th the experiments were made between the San Bartolomeo Arsenal and the offices of the department, a distance of about two and one-half miles; on the 12th the experiments were public; and on the 13th messages were sent from one moving vessel to another, care being taken to have obstacles between the vessels, as it was desired to prove beyond a doubt that no obstructions of any kind would interrupt communication. *L'Illustrazione Italiana* publishes the following report of the trials made on the 13th:

"The experiments took place at the arsenal at Spezia; Marconi and the electrician Civita remaining at the receiver, which was placed near the entrance of the headquarters, while Prof. Pasqualini, of the department of electricity and war supplies, stood by the transmitter, outside of the directors' room at the arsenal. Before beginning the experiments Civita explained the apparatus. The results were splendid, as they always are. Various phrases were transmitted, such as 'Evviva Marconi.' 'Evviva Bologna.' (The latter is the native city of the young inventor.) Several officers of the navy, the engineer corps and the artillery addressed questions to Marconi, who answered them all, although tired from the excitement and work of several consecutive days." Admiral Grillo presided, assisted by the commander of the Spanish vessel Cristobal Colon."

In speaking of his own work, Marconi says:

"The greatest distance to which we have been able to transmit messages by telegraph without wires is twelve miles. But that by no means is the limit of the instrument; it simply signifies that existing appliances are not perfect. At Spezia I sent messages without wires from the San Bartolomeo arsenal to the war ship San Martino, twelve miles out in the harbor, without difficulty and with absolute accuracy. It was done before the royal commission. Official experiments will be renewed when I return to Italy in September. I have successfully experimented also at the Italian Ministry of Marine and at the Quirinal before the King and Queen. I made the discovery almost by accident. I had been studying electrical phenomena three

years, when two years ago I found that by putting Hertz's radiator to the earth, connecting it with a wire extended vertically in the air and repeating the process with the modified Bramley receiver, a current could be transmitted about one hundred yards without connecting the wires. Then I found that, without increasing the battery power but by simply increasing the height of the vertical wire, the influence of the instrument extended over a distance increasing in geometrical ratio to the increased height of the wire.

"The wire must extend into the air. A coiled wire helps only as the coil is high, not according to the length of wire in the coil. A wire inclined instead of vertical has power equal only to that developed by a vertical wire as much shorter as the distance taken up by the inclination. A wire carried to the top of the high mast of a ship ought to enable the captain to telegraph a considerable distance, figuring that 100 feet in height of the wire means twelve miles in distance of communication. By the same process magazines could be exploded in time of war from a great distance, and signals could be sent so that the enemy could not possibly interrupt communication. It has been said that this would work both ways, that a current radiates in all directions from the sending instrument and, therefore, that a message would go to the enemy's camp as well as to a friend's. But this can be easily prevented, as I have proved, by means of electrical reflectors, which would arrest the progress of a message in all directions but one. I am not certain that I shall ever be able to send messages across the Atlantic, but I can see no reason why I should not do so, if I can increase the height of a vertical wire enough. I am just as much in doubt as you are as to the reason for this strange influence of a vertical wire over the strength of a current in this new development of that most mysterious of all agents, electricity. It will not cost more than half as much to install a telegraph system on my plan as it would on the old system. The instruments are slightly more expensive, but I imagine a decrease in cost would be brought about by the absence of miles of wire and poles."

W. H. Preece, electrician to the British post office, made the following report of the experiments in England last year by Marconi :

Mr. Marconi utilizes electric or Hertzian waves of very high frequency, and they depend upon the rise and fall of electric force in a sphere or spheres. He has invented a new relay which for sensitiveness and delicacy exceeds all known electrical apparatus. The peculiarity of Mr. Marconi's system is that, apart from the ordinary connecting wires of the apparatus, conductors of very moderate length only are needed, and even these can be dispensed with if reflectors are used. His transmitter is Professor Righi's form of Hertz's radiator. Two spheres of solid brass four inches diameter are fixed in an oil-tight case of insulating material, so that a hemisphere of each is exposed, the other hemisphere being immersed in a bath of vaseline oil. Two small spheres are fixed close to the large spheres and connected each to one end of the secondary circuit of the induction coil the primary circuit of which is excited by a battery, thrown in and out of circuit by the Morse key. Now, whenever the key is depressed

sparks pass, and since the system contains capacity and electric inertia, oscillations are set up in it of extreme rapidity. The line of frequency of oscillation is probably about 250,000,000 per second. The distance at which effects are produced with such rapid oscillations depends chiefly on the energy in the discharge that passes. A six inch spark coil has sufficed up to four miles, but for greater distances we have used a more powerful coil—one emitting sparks twenty inches long. It may also be pointed out that this distance increases with the diameter of the spheres, and it is nearly doubled by making the sphere solid instead of hollow.

"Marconi's relay consists of a small glass tube four centimeters long, into which two silver pole pieces are tightly fitted, separated from each other by about half a millimeter—a thin space which is filled up by a mixture of fine nickel and silver filings, mixed with a trace of mercury. The tube is exhausted to a vacuum of four millimeters and sealed. It forms part of a circuit containing a local cell and a sensitive telegraph relay. In its normal condition the metallic powder is virtually an insulator. The particles lie in disorder. They lightly touch each other in an irregular method, but when electric waves fall upon them they are polarized, and order is installed. They are marshaled in serriced ranks, they are subject to pressure—in fact, they "cohere"—electrical contact ensues and a current passes. The electrical resistance of Marconi's relay—that is, the resistance of the thin disk of loose powder—is practically infinite when it is in its normal or disordered condition. It is then, in fact, an insulator. This resistance drops sometimes to five ohms, when the absorption of the electric waves by it is intense. It, therefore, becomes a conductor. Marconi "decoheres" by making the local current very rapidly vibrate a small hammer head against the glass tube, which it does effectually, and in doing so makes such a sound that reading Morse characters is easy. The same current that decoheres can also record Morse signals on paper by ink. The exhausted tube has two wings, which, by their size, tune the receiver to the transmitter. Choking coils prevent the energy escaping. Oscillations set up in the transmitter fall upon the receiver tuned in sympathy with it, coherence follows, currents are excited, and signals made.

"In open, clear spaces within sight of each other nothing more is wanted, but when obstacles intervene and great distances are in question height is needed, and tall masts, kites and balloons have been used. Excellent signals have been transmitted between Penarth and Brean Down, near Weston-super-Mare, across the Bristol Channel, a distance of nearly nine miles. Mirrors also assist and intensify the effects. They were used in the earlier experiments, but they have been laid aside for the present, for they are not only expensive to make, but they occupy much time in manufacture. It is curious that hills and apparent obstructions fail to obstruct. The reason is probably the fact that the lines of force escape these hills. Weather seems to have no influence; rain, fogs, snow, and wind avail nothing."

—*Scientific American Supplement*, Sep. 4, 1897.

## CLINICAL RECORD.

## Foreign.

*Cases illustrative of the use of Arnica in Venous Thromboses.*

By THEOPHILUS ORD, M.R.C.S. Eng., L.R.C.P. Lond.

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The painful thromboses which occur in the course of a vein after a phlebitis, are most generally treated by hamamelis or hazeline both internally and externally, and sometimes by pulsatilla or carduus marianus. Under these remedies progress is often slow and tedious, especially when, as often happens, the least movement or exposure precipitates a fresh attack and another thrombus is formed.

If now arnica be given internally, the blood clots are dispersed with surprising rapidity, and what is even more important, the tendency to relapse will be counteracted. Two recent cases will illustrate this action of arnica.

CASE I.—Mrs. S., æt. 25, was expecting in two months her first parturition. She had developed extremely varicose veins in both legs four months before; for these she wore elastic stockings. After a longer walk than usual, phlebitis occurred in the left saphenous vein for some eight inches in the thigh. The patient was kept in bed, hazeline compresses applied, and the same drug given internally. The symptoms abated, but the hard clot remained, and every attempted movement threatened fresh inflammation. It seemed probable that the patient would have to lie up until her confinement. However, arnica 1x was tried internally, and in few days the thrombus vanished, also all pain and swelling. Patient was soon up again, and led an active life, without any return of the trouble, until her full time. She has had two pregnancies since, and though the veins have enlarged again to a limited extent on each occasion, there has been no return of phlebitis.

CASE II.—An elderly lady, after erysipelas, had severe inflammation of the veins of both legs, causing several thrombi to form, the largest of which occurred apparently in the external iliac vein, a tumour the size of an orange being felt deep in the right iliac region. During two months the pain and swelling continued, and every movement caused a fresh thrombus to form in some part of the leg or thigh. The usual remedies were tried, and also phosphorus, but with little effect. Finally, arnica 1x was given, when in a week's time the iliac swelling dispersed, and no fresh attack occurred, the patient being soon able to go out in a bath-chair.

Although the provings of arnica show no instance of the drug having produced thrombi, its action in this disease is none the less strictly homeopathic. For we have abundant evidence of its action on the veins, and the tendency it produces to extravasation of venous blood from the capillaries. The general disposition to hæmorrhages and the formation of blood-clot clearly shown in the cases given in

the *Cyclopaedia of Drug Pathogenesis*, probably depend upon its selective action on that internal coat of the veins which is continued in the capillaries. The condition of this inner coating, when thrombi are found during a phlebitis, is probably precisely similar, only greater in degree, to that produced in the provers of arnica, who exhibited a tendency to venous capillary hemorrhages. A blow, strain, or chill, too slight to do harm to a healthy person, would in anyone suffering from continued poisoning from arnica be extremely likely to cause phlebitis with formation of clots.

The effects of inflammation upon the inner coats of a vein are stagnation and clotting of the blood, whilst the walls of the venous capillaries, which are directly continuous and identical in structure with the inner lining of the larger bloodvessels, become so weakened as to rupture and permit an extravasation into the tissues. This latter process is probably identical with that produced by poisoning with arnica. The same drug in small doses has the effect of neutralising this tendency by restoring diminished vitality of the internal venous coats and causing absorption of the clotted or extravasated blood. So, too, in blood extravasated after an injury. Arnica accelerates the natural recuperative powers of the part, healing the ruptured capillaries and stimulating the formation of new capillaries in the injured area, by which the blood clots are softened, broken down and finally absorbed.

It seems probable that this property of arnica is the prime cause of its value in the effects of injury. For all strains and blows produce some dissolution of continuity in delicate tissues, with consequent rupture of capillaries. From this result the usual appearances of bruising and subcutaneous hemorrhage.

Two well known and striking examples of this action of arnica in absorbing blood-clot will be found in its action on the uterus after parturition, and its beneficial effects immediately after cerebral hemorrhages. By tending to healing the ruptured vessel and removing the extravasated blood upon the brain, paralysis after apoplexy may thus be minimised or averted by the timely use of arnica.—*Monthly Hom. Review*, Sept., 1897.

**THERAPEUTICS OF CONSTIPATION, DIARRHŒA,  
DYSENTERY, AND CHOLERA.  
153. MAGNESIA CARBONICA.**

**Constipation :**

1. Inclined to C., retention of st. being the primary effect.
2. St. only every 2nd day.
3. Hard st. first in the evening, with pressure and pain. St. very hard in the morning (2nd day). Hard st. at 2 p.m., followed by excessive burning in anus, till 5 p.m.
4. The st was so hard that she could evacuate it only with great effort, immediately after dinner.
5. S. hard and crumbling ; it troubled her a long time before a portion passed.
6. Very hard st., like stones, with pain in anus.
7. Hard scanty st. in the morning, with some pressure.
8. Urging to st. and emission of flatus, with cutting and pinching in anus, then hard st. with pressing and straining as for D.
9. The first portion of the st. was hard, the last thin, followed by excessive burning in anus.
10. Although st. not hard, she was obliged to make considerable effort to pass it.

**Diarrhœa :**

1. D. for several days.
2. D. with violent colic and straining, seven or eight times a day, for eight days.
3. D., with very soft faces, thrice a day. D. twice before midnight.
4. Liquid or half liquid st. without trouble.
5. Liquid st. followed by burning in anus.
6. D. of *liquid brown, like liver*, with subsequent tenesmus and burning.
7. D., five times from morning till evening, with great lassitude following.
8. D. of *green faces*. *Green*, foamy D. *Green*, mucous D. *Green*, diarrhœic st. three times a day.
9. Urging to D., in the night and morning, waking from sleep ; next afternoon, *green mucous D.*
10. D., several times, of a *green liquid*, preceded by pinching, especially in right side of abd.
11. D. of *greenish water*, with great inflation of abd., eight times in one forenoon.
12. *Green, mucous D.*, forenoon and afternoon, with many ascarides, and subsequent burning at anus.
13. Many lumbrici with the st. ; also between the sts.
14. Urging as for D., but there was only emission of flatus.
15. Constant urging to st., but little is passed, and it is only a sort of fermentation.
16. St. only after 4 days, scanty, yet soft and without form.
17. Soft st., preceded by pinching in abd., with loud relieving discharge of flatus (afternoon and evening).



18. *Yellow st.* (forenoon), with straining ; in afternoon ordinary *st.*
19. °*Sts.* offensive and watery, containing floating masses of green scum like that of a frog-pond. (*Hg. & Bell*).
20. °*Sts. green, watery*, with white floating lumps like tallow (*Hg. & Bell*).
21. °*Sour, frothy sts.*
22. °*Undigested contained curdled milk* (*Lienteria of sucklings*).

### **Dysentery :**

1. °*Bloody mucus found mixed with green, watery st., sinking to bottom of vessel and adhering there ; but the watery stool occurs alone.*

### **Aggravation :**

1. All time. 2. After breakfast (ineffectual urging).
3. In hot weather ; during dentition ; after fruit ; from artificial foods. (*Bell*).

### **Before St. :**

1. Cutting and pinching in abd. especially in right side.
2. Rumbling in abd. with general heat.
3. Emission of flatus.

### **During St. :**

1. Pain in anus. 2. Tearing in rectum, extending to abd.
3. Urging, with great force. 4. Violent colic and straining.
5. Passage of ascarides and lumbrici.
6. Discharge of flatus, sometimes loud.

### **After St. :**

1. Burning at anus. 2. Lassitude.

### **Rectum and Anus :**

1. Frequent discharge of loud flatus ; flatus of penetrating smell.
2. Passage of round worms when not at stool.
3. Painful hæmorrhoids. 4. Straining in the rectum between sts.
5. Shooting in rectum, like needle pricks, when walking, relieved by emission of flatus ; such needle pricks occur during sleep, waking her from it.
6. Sore pain in anus, as if ulcerated.

### **General Symptoms :**

1. Head feels muddled and benumbed from mental labor. Pressure across head during mental work.
2. Vertigo, even to sinking down, with nausea while sitting, became unconscious while lying down.
3. Heaviness of head when lying down, after waking from a noonday nap ; while the saliva is tinged with blood.
4. Rush of blood to head, especially during his customary smoking of tobacco.
5. Rapid loss of hair of head.
6. Swelling of the eyeball, as if dropsy of the eye would set in.
7. Great sensitiveness to noise. Ringing in the ears.
8. The nose becomes red and swollen, several evenings.
9. Bleeding from nose and mouth.
10. Throbbing pains in antrum Highmori, and swelling of bones of right cheek.

11. Soreness of upper lip. Herpetic eruption below whole of mouth. Pustules on upper and lower lips.
12. Toothache, with swelling of cheek, aggravated by cold. Toothache, drawing from teeth into temples, only beginning in evening, driving him at night from bed, for several nights. Toothache every day particularly at night; with redness and swelling of the gums.
13. Heat in the mouth the whole day. Bloody saliva. Food has hardly any taste, tongue coated white, mouth very slimy. Sour taste.
14. Loses appetite, and then stom. feels full; satiated with the first morsel. Hunger, yet no appetite for bread. Good appetite for vegetables, but loathing of meat. Eating meat gives dry skin and heat.
15. Much thirst, with little appetite. Gets weary during eating. After meals, lassitude, paleness of face, nausea and dark-colored vomiting of the ingesta; also pains and inflation of the abd. Abortive eructation or hiccough. Sour eructations.
16. Pressure in stom. Contractive pain in stom. Great heaviness of abd. Gripping and rumbling in whole abd., followed by *v.*, thin and green, without tenesmus.
17. Inability to retain urine on rising from seat and when walking. Urine passes involuntarily while walking. White sediment in urine. Burning urine, like salt water. Smarting and stinging during micturition.
18. Very frequent pollutions, almost every night. Discharge of prostatic juice during passage of flatus.
19. Leucorrhæa, causing smarting; of white mucus, preceded by abdominal cramps.
20. Complete hoarseness, towards evening. Severe cough, with difficult, thin, salty expectoration. Cough after being heated. Severe oppression of chest, at times deep breathing. Palpitation of heart.
21. More tired in morning after a sound sleep, than in evening when lying down. At night, great internal heat, so that he can hardly stay covered, and yet great dislike to exposure by uncovering. Nocturnal wetting of bed. Anxious dreams, as if he could not find his way home; of fight with robbers; as if he had an epileptic fit.
22. Night-sweat unusually profuse, sour-smelling, greasy, which is difficult to wash from the linen. Profuse perspiration by day, at the least motion.
23. Sudden prostration after walking in the open air.

**Remarks:** We reserve our remarks till we have given the symptoms of the other Magnesian salts,—the Muriate, the Phosphate, and the Sulphate.

**Cleanings from Contemporary Literature.****HOW SHALL WE DISPOSE OF OUR DEAD?**

BY WILLIAM C. POWELL, M.D., BRYN MAWR, PA.

(Read before the Homoeopathic Medical Society of the Twenty-third Ward of Philadelphia, November Meeting, 1896.)

In presenting this paper I was actuated by a desire to get the views of this Society on the question, *How shall we dispose of our dead?* It is one which has agitated the mind of man from the creation to the present. There are few subjects which present such varied and important thoughts for consideration. Human life presents to Christian people two elements or natures—a human, material or mortal, and a divine, spiritual or immortal. Death, the termination for ever of earthly activity, separates these two natures—the spiritual returning to God and divine means for its disposal, the human remaining a foreign substance for the living to dispose of according to their peculiar customs. In considering this question I shall confine myself to the two modes in vogue at present, inhumation and cremation. For convenience, I desire to call your attention to the subject under five heads: sanitary, economical, medico-legal, æsthetic and theological. The medical profession particularly should take an active, intelligent and practical interest in the first, or sanitary, solution. That poisonous substances can be transmitted through the ground for a considerable distance is shown by an experiment of Sir Spencer Wells: “A salt of lithium was spread upon the ground at a distance of 500 feet from a well, the water of which was free from that metal. Repeated examinations were made, and at the end of 18 days lithium was detected in the water, showing the salt must have penetrated the soil and found its way into the well.” The advocates of cremation claim that efforts to arrest infections as well as contagious diseases, such as scarlet fever, diphtheria, etc., are frustrated by the burial of infected bodies; for, while the microbes themselves die, their spores or seeds have great vitality, and burial does not destroy the contagion that lurks within them, and there is constant risk of contamination of both air and water. They say we shun the presence of those afflicted with infectious diseases while living, and yet no sooner are they removed by death than we are content to lay them in the ground, that they may slowly dissipate their terribly infectious gases through the soil, and, saturating that, may thereby recharge the rains of heaven, as they filter through it, and thus reproduce all their virulence in the systems of the living. In proof of this, Dr. Fricie, of Rio Janeiro, while investigating an epidemic of yellow fever a few years ago, found the soil of the cemetery wherein the victims of the fever were buried, alive with germs exactly similar to those found in the blood of the recent victims. Such an eminent authority as Sir Henry Thompson says: “Give me the dead body to resolve into carbonic acid, water and ammonia as rapidly as possible, and I have no fear of disease spreading in neighborhoods where it is prevailing.” Cemeteries, they assert, are a menace to public health, and often are so situated that the leechings from the accumulated corpses must of necessity be filtered into the wells from which many families obtain their drinking-water. The result is not only disagreeable to contemplate but is detrimental to health, producing fever and germ-diseases. If this be true, by earth-burial we are unavailing in our attempts to arrest disease. But let us see what the advocates of earth-burial claim. Such scientists as Pottenkofer, Hofman and Leluni state that, from a bacteriological standpoint, there is no evidence that a buried body is a source of special danger to the living, and the fear that any water-supply would be contaminated because of drainage from dead bodies

is unreasonable—that no damage can come of exhalation from a body six feet below the earth. Personally, as far as my limited experience goes, I have been unable to trace sickness due to close proximity to cemeteries, and have not found families living near them more sickly than those at a distance. Furthermore, I feel the dangers are much exaggerated; and I believe, if the process of embalming by injecting the embalming fluid into the circulation soon after death was practiced, it would so disinfect the body as to render it harmless. A local undertaker, Mr. J. S. Pearce, one of the foremost in his profession, has conducted a very interesting and instructive experiment upon an unclaimed male body. Last March the body was embalmed. Eight months have passed and it is still in a perfect state of preservation, although resting on a swinging-shelf in the third-story of a ware-room, with nothing but a muslin cover over it, subject to the excessive heat of summer, and yet no odor nor evidence of decomposition. On the contrary, a mummification has taken place in the nose, fingers and toes. This preservation explodes a statute law which claims that in three months a body, if buried or exposed to atmospheric conditions, would be so distended with gases of decomposition as to be unrecognizable. The only odor to this body is that of human oil; the cover surrounding the body has become greasy from contact with it. For dissecting purposes this experiment should be of great advantage, not only disinfecting the body, but preserving it indefinitely. This subject, five months after death, had a portion of thigh dissected by one of our local physicians, and even now the flap can be removed and the muscles will be found pliable, arteries and veins in good order. The abdominal cavity was opened, and the internal organs found in a perfect state of preservation. The disgusting practice of pickling the bodies for dissecting should be done away with. As a proof that water is not contaminated by burial in West Laurel Hill, within a few feet of hundreds of dead bodies is a well which furnishes as pure drinking-water as can be found in any section of the country. This has been chemically tested by experts, and not a trace of impurity found.

Now as to the economic aspect. The expense of interment varies greatly in different localities, and is much or little, according to the financial standing of the deceased. The average expense in the middle classes for each interment is from 25 to 100 dollars, including in this estimate coffin, undertaker's fee and lot. The cost of incineration at Philadelphia crematories for members is 75 dollars; non-members, 90 dollars. This includes a handsome coffin, hearse, two carriages, services of undertaker, incineration of body, a receptacle for the ashes and space in cemetery for urn-burial. The medico-legal question presents a great disadvantage to incineration. In cases of doubtful identity it is sometimes possible to settle the disputed point by inspection of the body after burial. Again, in cases where poisoning or criminal violence is suspected, the result of the trial and fate of the accused may sometimes depend upon the evidence furnished by a post-mortem or perhaps post-burial examination of the body. The destruction by cremation of all demonstrable evidence of the cause of death—that is, as can only be obtained by the exhumation of the body—is a danger to society, and should be made the subject of careful investigation. The law at present seems inadequate to settle the difficulty. The only requirements of the incinerating company are that a permit must come from the Board of Health, and all applications for the incineration of bodies must be accompanied by the customary certificate of death.

The æsthetic side offers, probably, the most potent objection to cremation in the minds of many. There is something peculiarly shocking to most minds in the thought of burning the bodies of friends. That a human form, but recently full of life and vigor, should be burned to ashes seems

little less than sacrilege, and when the form is that of one whom they have loved and cherished in life, cared for in sickness, and watched over in the hour of death, the idea becomes repulsive. On the other hand, to minds differently constituted this method, whereby the remains of loved ones are reduced to their elements in a few hours, seems infinitely preferable. They have a horror of placing their loved ones in the ground to moulder and decay, to be eaten by worms, and perchance to have the grave desecrated. Then, too, the horror some have of being buried alive would be obviated. So, too, if embalming, in connection with earth-burial, be practiced, there can be no possible return of life in the grave. As some may not have familiarized themselves with the process of incineration, I have condensed the following from the *Columbarium*, a journal devoted to the interests of cremation: "Upon arriving at the crematorium, the coffin, with the body, is placed upon a catafalque and taken to the chapel, where services can be held. After this it descends, by means of an elevator, to the crematory, is placed upon a cradle, covered with a cloth saturated in alum-water, and noiselessly rolled into the retort or incineration-chamber. This is built of fire-clay and heated to about 2600° Fahrenheit. No fire comes in contact with the body, and no flame touches the flesh or bones at any stage of the process. In about three hours the coffin is reduced to charcoal and the body to pearly-white ashes. The charcoal is removed and the ashes placed in a temporary receptacle until final disposition is determined by the relatives of the deceased."

As to the last, or theological, standpoint: Between burning and burial there is no difference as to the final result; the inevitable change is wrought in the one case quickly, in the other slowly; in one by the action of clean flame, in the other by the action of the earth. When the soul leaves the body it leaves it for ever. The resurrection body is not the physical, natural body, but the spiritual body. St. Paul tells us the relation of this present body to that which shall be hereafter is like the relation of the seed to the flower or the grain to the stalk and fruit. The notion that our future state depends in any way upon the disposition of our dead body has no place in the Christian religion. Take, for instance, a hero rushing into a burning house to save the life of another. The ashes of his body mingle with the ashes of the ruins. Does anyone suppose his soul burned with his body? One must have a strange idea of God to believe that. If such be true, what shall be said of the holy men and women who have died at martyrs' stakes? Both sides of this subject I have tried to place before you in a fair and candid spirit, and trust it may bring forth a good discussion. There are a few customs, however, which I should like to criticize—the ostentatious and elaborate obsequies, the showy mourning, the glowing and often grossly excessive tributes to the deceased, the artificial pomp and parade of sepulchral display which fashion or custom continues to dictate; but as my paper is already long, I shall not dilate further, but will only state that there is an encouraging sign and evidence of growing intelligence, to read in our newspapers, "No flowers" and "Interment private." In the presence of such solemnity as death the utmost simplicity is most becoming.—*Hahnemannian Monthly*, Sept. 1897.

## AN ADDRESS ON THE WORK OF PASTEUR AND THE MODERN CONCEPTION OF MEDICINE.

*Delivered before the British Medical Association at Laval  
University, Montreal.*

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Delegate of the French Government and of the Faculty of Medicine  
of Paris to the Sixty-fifth Annual Meeting of the British  
Medical Association.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—It is not without emotion that I rise to address this learned assembly. I know indeed that I am addressing men who are not my fellow citizens, but among them are some, *enfants de notre vieille nation Gauloise*, who have the same mother tongue as we; they speak from childhood our beloved French language, they are thus a little more than my fellow citizens, for they are my compatriots, and I feel myself animated by a truly fraternal affection for them; and as to my English colleagues, they have given evidence of so much good will and of a courtesy so delicate that I need make no great effort to assure them of my gratitude. In one word, although a stranger I seem to be among friends.

I am somewhat troubled, also, because I am addressing medical men and am speaking before a medical congress. Now, although I belong in some small degree to the great medical family, since my father has conferred honour upon the profession of medicine by his labours and by his works; and although I have the great honour to be the delegate of the Faculty of Medicine of Paris, yet I am not a medical man, and a physiologist displays some temerity in venturing to speak before you on medical matters.

### THE RECONCILIATION OF MEDICINE AND SCIENCE.

Still I have an excuse. It is this, that I desire to attempt to bring about a complete reconciliation between medicine and science. It may seem that this is a commonplace, and that any such attempt would be unnecessary. But it is not so, gentlemen. We might find perhaps, somewhere—not, I am sure, in this assembly—medical men ready unhesitatingly to assert that there is discord between medicine and science, and that all those sciences which are called ancillary—physics, chemistry, physiology—are *impedimenta* with which the clinician has nothing to do. Yes, there are to be found in the world medical men, among them even men of high attainments, who are ready still to say: "What have I got to do with your experimental science? Observation of the sick and clinical study are worth more than all your clever experiments, and it is not from laboratories that the means of curing disease can come." Such an opinion appears to me to be erroneous, and I would with all the energy which I possess help to upset it. I hold that it is by experimental science alone that medicine has made and can make progress. It will suffice to describe the work of Pasteur, my illustrious master, in order to give you a convincing demonstration of this.

I shall not be contradicted when I say that the value of this work is greater than all that the history of medicine has given us since the commencement of our era. Through his labours everything has been renewed, regenerated, and, thanks to him, medicine has made more progress in twenty years than had been made previously in twenty centuries.

### THE LIFE-WORK OF PASTEUR.

Louis Pasteur was born at Dôle in the Jura in 1821, and at the begin-

ing of his career gave himself up to the study of chemistry. He became deeply interested in a difficult and important problem—molecular dissymmetry. Here was a question in pure chemistry which would seem to take us very far from medical questions, but it was to lead Pasteur directly to the study of fermentations. If a solution of tartaric acid (in the form of tartrate) be left untouched, a change occurs after some time in the chemical constitution of the liquid, which before Pasteur's time had been overlooked. The original solution has no action on polarised light, but after fermentation this same solution has become capable of deflecting polarised light. Pasteur explained this phenomenon by showing that the original tartaric acid is a mixture of an acid deviating light to the right with an acid deviating it to the left, and that a process of partial decomposition takes place, one of the acids is destroyed and the other is not altered, so that the action upon polarised light, previously masked by the mixture of the two acids, becomes evident. Here we have a fundamental experiment. It is told how when the young Pasteur desired to show it to Biot, that great physicist, who had discovered the phenomena of polarisation, the old *savant* grasped the trembling hand of the young man, and, before beginning the optical examination of the crystals submitted to him by Pasteur, said to him with tears in eyes, "*Mon cher enfant*, I have loved science so much, that in face of the beautiful experiment which you relate to me I cannot prevent myself from being deeply moved."

The explanation given of this phenomenon at that time was that the tartaric acid was decomposed by fermentation. Men were then content to use this magic word, which appeared to explain everything, but which in reality told nothing at all. Neither Lavoisier, nor Leibig, nor Frémy had been able to discover its meaning and were reduced to the theory of half organic matter—a childish conception worthy of Paracelsus.

One of Pasteur's experiments, perhaps the most beautiful which he ever made, demonstrated the nature of this mysterious phenomenon. If a sugary solution of carbonate of lime is left to itself, after a certain time it begins to effervesce, carbonic acid is evolved, and lactic acid is formed, which decomposes the carbonate of lime to form lactate of lime. This lactic acid is formed at the expense of the sugar, which disappears little by little. But what is the cause of this transformation of sugar into lactic acid? Well, Pasteur showed that the efficient cause of this chemical action was a thin layer of organic matter; that this layer of organic matter consisted of extremely small moving organisms, which increased in number as the fermentation went on. Their growth it is, then, which produces the phenomenon of the transformation of sugar of milk into lactic acid. If, for example, we take a sugary solution in which all pre-existing germs have been destroyed by heat, no lactic fermentation will take place. But if we introduce into this sterile liquid a small quantity of this layer of organic matter, such as can be obtained from any liquid in which normal lactic fermentation is taking place, we shall see the lactic acid again form rapidly in the new solution.

Let us dwell a little on this admirable experiment. Nowadays it seems to us so extremely simple that we can scarcely perceive its importance. It seems to us now, in 1897, that from all time we must have known that an organic solution when heated was sterile, and that a germ would suffice to render it capable of fermentation. But this is a mere delusion. No, a thousand times no! This great fact of the generation of germs was absolutely unknown before Pasteur, and the method of sterilising liquids, and of their inoculation with spores, was revealed to us by Pasteur. It is the nature of great discoveries that they become popularised in a short time, and thus very quickly become elementary. A first year's medical student knows perfectly that which neither Lavoisier, nor Liebig, nor

Frémy, nor any one before Pasteur had been able to perceive. We are always tempted to be ungrateful to great creators, for their creations pass rapidly into the domain of common knowledge. They become so simple that they cease to surprise us. We do not think of being grateful, and we forget the efforts which genius has had to make to wrest the truth from jealous Nature. Gentlemen, let us not be ungrateful, let us remember that the recognition of the real cause of all fermentation (the development and germination of organised elements) dates from 1857, and from the celebrated memoir of Pasteur upon lactic fermentation. A new world was then opened to science.

Nevertheless, this memoir of Pasteur's, containing one of the fundamental discoveries of the century, was not welcomed as it ought to have been. At first its importance was not understood, and afterwards absurd contradictions were opposed to it. A whole series of beautiful and decisive experiments was necessary to prove that there was no such thing as spontaneous generation, and that sterile liquids remained sterile indefinitely so long as no germs were introduced into them. Pasteur devoted six years (1857-1863) to the proof of the fundamental fact that "organic liquids do not alter until a living germ is introduced into them, and living germs exist everywhere."

#### THE MICROBIC THEORY OF DISEASE.

A great step yet remained to be taken. This was to determine the evolution of these germs, not merely *in vitro* but in the living organism. We to whom the idea of parasitism and microbic infection is now so familiar can scarcely conceive that it has not always been thus.

The microbic theory has become so ordinary, so popular, that we are tempted to believe that the part played by microbes was understood even in the times of Hippocrates, but I assure you that in truth this was not the case, and for long enough after Hippocrates the power of microbes was not known.

Pasteur, to whom, and to Sédillot and Littré, we owe the word "microbe," was the first also to explain to us in his essay on the silkworm disease, published in 1867, the part they played in the production of disease. He proved that the bright corpuscles found in the bodies of diseased silkworms are living germs—a distinct living species, a parasite which can multiply and reproduce itself and disseminate the contagion.

It was therefore with painful astonishment that I heard Prof. Marshall Ward recently say that the discovery of the part played by microorganisms in disease was due to Koch, and dated from 1876. Now, ten years before this, Pasteur had published his experiments on *pébrine* and *flacherie*. Davaine had shown the part played by bacteria in anthrax infection, and the idea of infection and of contagion by microbes in the higher animals as well as in the lower had become a commonplace, not indeed in the medical world, but in all laboratories.

Thus, by successive steps, did the work of Pasteur develop in all its greatness and logic. In the first place, in order to elucidate a chemical problem, he studied tartaric fermentation; then he was led to study lactic fermentation, and he showed that they were biological phenomena. He then pursued the analysis of this phenomena with all its consequences, and was led to the conception that disease was due to the development of a parasite.

The normal living being follows out its course of growth without the development of any organic parasite in its tissues or in its humours. But if these humours or tissues happen to be inoculated with any organism capable of developing, then this small living thing multiplies, the higher organism is infected, and the whole body becomes, as it were, a culture fluid, in which the pathogenic microbe propagates itself, a centre of infection



which scatters the disease by sowing the noxious germs wherever it goes. Thus arose the new conception, profoundly new not only for medicine but for hygiene — Disease is Parasitism. Thenceforth we understood the meaning of the words "infection" and "contagion," previously mysterious.

It is true that Pasteur did not discover all the microbes of all contagious diseases; but this is of small moment, since he was the first to discover that infection was a phenomenon of microbial parasitism. All those who after him have proved points of detail, however important or fundamental they may be, have but followed the path traced by the master. Whether they will or not, they are all the pupils of Pasteur, as those who follow the study of chemistry are pupils of Lavoisier.

The greatest of Pasteur's disciples, Robert Koch, although with some ingratitude he refuses to recognise his master, has only perfected certain points in technique and applied his ingenuity and his perspicacity to the solution of questions which, in spite of their practical importance, are still secondary. He has not, in fact, been able to do anything new except upon points of detail; all that is essential comes from Pasteur himself.

Need I say that this idea of the microbe, of the parasite, has become the basis of medicine. If we take up treatises on pathology written before this prodigious revolution, we shall be astonished by the insignificance and the nothingness of these very ancient books. Yet they are not really very old; they are dated 1875 or 1880; but as one reads them it seems as though several centuries must have intervened between these venerable writings and modern books. I know an excellent article on tuberculosis written in 1878, before the microbe of tuberculosis had been discovered. Well, this article belongs to another age; it belongs no longer to medicine, but to the history of medicine, for it swarms with mistakes and incredible errors with regard to pathological anatomy, etiology, prophylaxis, treatment—in fact, from every point of view.

In ten years medicine has been entirely overturned and remade. It is being remade every day. Every day brings some new discovery in matters of detail; but the great principle is always there, and it must always be attributed to the one initiator.

This is not all. Another new and great discovery was to be made by Pasteur himself, and to constitute the supreme development, the culminating point, as it were, of his life's work. This is the principle of vaccination. By a series of researches, admirable for their precision, Pasteur proved that the pathogenic microbe could be attenuated—that is to say, rendered incapable of causing death. But, though this microbe does not cause death, yet it can produce the disease, a disease sometimes so attenuated as to be almost imperceptible. Now the living being which has suffered from this attenuated disease is protected against its more serious form, and, borrowing the word consecrated by the immortal discovery of Jenner, Pasteur said that we have here "vaccination."

Fermentation, infection, contagion, vaccination; here in four words we have the work of Pasteur. What more need I say? Do not these four words possess, in their simplicity, unequalled eloquence?

Can anyone longer maintain that the progress of medicine is not due to experimental science? Does not all this knowledge of microbes and of the part which they play in disease imply immediately and necessarily, immense progress in therapeutics?

#### ANTISEPTIC SURGERY.

To take but one example, I will cite the application of microbial theories to surgery.

There was a time when erysipelas, purulent infection, and hospital

gangrene decimated those upon whom operations had been performed, when puerperal infection, claimed a terrible number of victims. It seems to us nowadays that the medical profession before 1868 were blindfolded, and that their blindness was almost criminal. These are now no more than historic memories. A sad history, doubtless, but one which we must look at coolly in order to understand what science can do for medicine. Left to their own resources, practitioners of medicine during long centuries could do nothing against erysipelas, against purulent infection, against puerperal infection; but, basing itself upon science, surgery has been able to triumph over these odious diseases, and to relegate them to the past.

Let me here introduce a reminiscence. When, on the occasion of his jubilee, a great celebration was prepared for Pasteur in the Sorbonne, in the presence of the leading men of science of the world, there was a moment when all hearts were softened—the moment when the great surgeon who was first to perceive how to apply to the practice of his art the theory of pathogenic parasites, when Lord Lister drew near to Pasteur and gave him a fraternal embrace. These two great benefactors of humanity, united in their common work, afforded a spectacle never to be forgotten, a striking recombination of medicine with science.

But the apogee of the glory of Pasteur was the discovery of the new treatment of hydrophobia. No one of his scientific conquests was more popular, and from France and from the whole world there arose a long cry of admiration. Perhaps in the eyes of biologists this discovery possesses less importance than his labours with reference to the fermentations and to vaccination, but for the public this was the chief part of Pasteur's work. And men of science also were forced to admire the scientific courage of Pasteur, who, putting aside the precise methods which he had taught and discovered, knew how to devise new methods to meet the exigencies of the circumstances, and how to put them victoriously into practice.

Thus was finished the work of Pasteur. He was spared to take part in the triumph of his ideas, and to be a witness of his own glory. If, like so many creators, he had sometimes in his earlier days known conflicts and hatreds and petty quarrels and foolish objections, nevertheless he had not to deplore the ingratitude of mankind. He died full of honours, surrounded by admiration, respect, and love. For him posterity had already commenced when he died.

#### THE UNION OF MEDICINE AND SCIENCE.

And now let us turn back to consider the indisputable union of medicine and of science. This, in fact, is what ought to strike us in the work of Pasteur. It is not only in general biology and in the progress of our knowledge that his work is great, it is still more in its immediate practical applications. The great biologists of our century Lavoisier, Claude Bernard, Darwin, have, without doubt, left behind them work which by reason of its conquests of new truths is not inferior to the work of Pasteur, but these new truths do not lead to any such immediate application as antisepsis, the treatment of hydrophobia, anthrax-vaccination, or the prophylaxis of infectious diseases. Pasteur was not only a man of science; he was also a philanthropist, and there is scarcely one who can be compared with him as a benefactor of suffering humanity except Jenner, who found out how to preserve thousands and thousands of human beings from the most hideous of all diseases.

Further, Pasteur brought back medicine into the true way of science. Even after Magendie, Müller, Schwann, and Claude Bernard, it might still have been asked whether all these experiments establishing so many important truths had really been of any advantage for the relief of the sick. To discover, as did Schwann, that living beings are an aggregate of cells ;

to prove, as did Claude Bernard, that the liver forms sugar; to establish, as did Darwin, that living species can be transformed by the influence of long-accumulated variations in the environments—these are admirable pieces of work, but work in pure science which had not any immediate therapeutic results. Strictly speaking, then, it was possible to maintain that clinical medicine did not derive any benefit from such investigations. I do not for a moment believe that this opinion had a shadow of a foundation, but before the time of Pasteur it was not so absurd as it has become since Pasteur. Since Pasteur no man can, without incurring the charge of monstrous ineptitude, refuse the rights of citizenship in medicine to experiment and to biology.

And to speak the truth, men of science and biologists, as though their ardour had been redoubled by the renovation of medical ideas, have during these last ten years made discoveries which have introduced into medical science new elements which clinical observation alone had been absolutely incapable of discovering. I will cite a few examples—the action of the thyroid gland, the Röntgen rays, pancreatic diabetes, and serum therapeutics.

#### THYROID IN THERAPEUTICS.

Physiologists had shown long ago that the ablation of the thyroid gland led to serious results. Schiff had proved thus as long ago as 1857, but the explanation of the phenomenon did not become clear until Claude Bernard, but especially Brown Séquard, had demonstrated the existence of internal secretions of glands pouring into the blood their products which probably neutralise certain toxic substances. This very naturally led Vassale and Gley to inject into animals from whom the thyroid gland had been removed the juice of the thyroid, and thus prolong their lives. The therapeutic conclusion to be drawn was obvious, namely, to treat the unfortunate subjects of cretinism or of diseases of the thyroid gland by injection of extracts of the thyroid body. You know that the result has been most happy.

This new treatment was a true experiment, and as is the case with so many experiments, the actual result has been a little different from that which was expected. The ingestion of thyroïdin is not only a means of curing goitre and cretinism, but is only a treatment, sometimes remarkably efficacious, for obesity.

#### THE ROENTGEN RAYS.

The discovery of the Roentgen rays excited general enthusiasm, and as a matter of fact it is one of the greatest conquests of contemporary physics. Most assuredly medicine had nothing to do with it. The research was made and the success was obtained in a physical laboratory. Now you are not unaware that these Roentgen rays have been called to play a part, if not in the treatment at least in the diagnosis of diseases—a part the importance of which goes on increasing from day to day. Physicists have discovered the principle, it is for medical men to follow up its application.

#### PANCREATIC DIABETES.

The existence of pancreatic diabetes was suspected vaguely by a clinical physician, Lancereaux; but the means which clinical medicine and pathological anatomy placed at his disposal did not give him the power to solve the problem. In spite of his perspicacity, he could do no more than note a certain correspondence between diabetes and lesions of the pancreas. How could more have been learnt if we had not the resource of experiment? Two physiologists, Mering and Minkowski, have had the good fortune to show that ablation of the pancreas determines glycosuria, to show that there is a pancreatic diabetes, and they have studied its various conditions with great ability.

#### SERUM THERAPEUTICS.

I come now to serum therapeutics, a direct consequence of the labours of

Pasteur. This is a mode of treatment born of the experimental method alone. Here, again, science has done for the art of medicine that which clinical observation, left to its own resources, could never have accomplished.

Permit me now to show how serum therapeutics is derived directly from physiology and experiment, and pardon me if I am forced to speak of my own work; I shall do so I hope without any vanity. I know very well that we always owe to our predecessors and to our rivals much more than our pride admits, and that the experiments and the ideas which succeed are not always those which have been conceived most methodically,

About 1887 M. Chauveau had shown that French sheep could contract anthrax, and that they are very easily infected by the bacillus anthracis, the microbe of anthrax, if small quantities of the bacillus be injected under the skin. But Algerian sheep seem to be safe from the disease. In vain is the bacillus anthracis injected into them; they do not contract anthrax. They are refractory to this disease and possess a remarkable immunity to it. Having reflected on this strange fact I framed the hypothesis that the cause of the immunity of the Algerian sheep, which are absolutely similar from the anatomical and zoological point of view to French sheep, depended upon chemical substances contained in the blood, and that in consequence we might hope to confer immunity on French sheep by transfusing into them the blood of the Algerian sheep. It is, however, difficult to make experiments on sheep. Therefore, with my friend Héricourt, who has been throughout these researches my tireless fellow worker, I took animals of two different species, the common victims of physiologists—rabbits and dogs.

Just at that time we had been studying a microbe nearly related to the staphylococcus albus, the staphylococcus pyosepticus, which in rabbits produces enormous subcutaneous swellings when injected under the skin and causes death in twenty-four to thirty-six hours. The dog, on the other hand, seems to be almost refractory to inoculation with this microbe. We therefore attempted to transfuse the blood of the normal dog into rabbits by intravenous injection, but this operation did not succeed, for the transfusion of dog's blood into the veins of the rabbit even in a dose of only 10 g. rapidly causes death.

It then occurred to us to resort to peritoneal transfusion in place of intravenous transfusion. In this way we were able to introduce into the organism of the rabbit 50 or 60 g. of dog's blood, and had the good fortune to see the experiment succeed completely. Rabbits transfused with the blood of the normal dog survived the inoculation of the microbe for four or five days, and rabbits transfused with the blood of a dog vaccinated against the microbe did not die, and were in fact hardly ill at all.

This experiment, which was made on November 5, 1888, is, as it seems to me, the very basis of serum therapeutics; it in fact proves that the blood of animals refractory to a disease contains chemical bodies which counteract the effects of the specific pathogenic microbe of the disease. We understood its importance from the first, and having established the general pathological principle, we resolved to apply it to a disease of man.

For several days, then, Héricourt and I debated the question whether we should experiment with one or other of the three diseases—anthrax, diphtheria, or tuberculosis. Unfortunately we decided for tuberculosis. Its microbe is easily cultivated, and, as you know, it produces greater ravages among men and animals than any other disease. We set to work at once, but, as you will understand, time was required before we could obtain definite results. Still, in a year's time we were able to show that the injection of dog's blood into rabbits retarded enormously the development of tuberculosis. It was, nevertheless, necessary to pass from experimental physiology to human therapeutics. Taking advantage of an observation of Bouchard's to the effect that the serum of refractory animals is as active as

the whole blood, we were able to inject the serum in tuberculous diseases. The first sero-therapeutic injection was made by us on December 6, 1889.

At first we had for a space great hope. Yes, in truth, for several weeks we believed that we had discovered the heroic treatment of tuberculosis. For several weeks the various patients that we had under treatment found that their strength was renewed, that their appetite returned, that their weight increased, and that cough and expectoration disappeared almost completely. But, alas, it was no more than a transient improvement. A month or a month and a half later the pitiless disease resumed its course, and the sero-therapeutic treatment turned out to be inefficacious. Happily, while by the most diverse plans we were in vain searching for a method of treating tuberculosis by serums, a German unexperimenter, Behring, after studying the effects of the serum of refractory animals upon diphtheria, showed (in 1892) that this serum is wonderfully efficacious in the treatment of the disease. He applied the serum method of treatment not only to diphtheria, but also to tetanus, and, at first in animals and afterwards in man, he obtained results which were really marvellous. Gentlemen, you know the rest, and I need not tell you that this sero-therapeutic method, improved and popularised by Roux in 1894, is now a treatment without compare. The statistics on this head are absolutely conclusive. The mortality of diphtheria, which was 45 per cent., has fallen to 15 per cent. That means for the city of Paris alone an annual saving of about 1,000 human lives; for the whole of France, nearly 10,000 lives. We may take the same proportion for Italy, Germany, England, the United States, Canada, and Russia, and may estimate the number of infants which serum therapeutics snatch from death at about 50,000.

In other diseases the results of serum therapeutics have been much more open to criticism, and it would be necessary in order to arrive at a satisfactory conclusion to discuss them in detail. I cannot attempt to do this here, for it would be an abuse of your patience. I will content myself by venturing the opinion that serumtherapy has not said its last word. The organism is endowed with a marvellous power of resisting the poisons secreted by microbes. It sets to work in its turn to secrete counter poisons which neutralise the poisons secreted by the microbe. The antitoxins of the organism combat the toxins of the parasite, and in the future the art of serum therapeutics will be to seek in these resisting organisms the antitoxins fabricated by their cells.

#### MEDICINE AND EXPERIMENTAL SCIENCE.

Thus on whatever side we turn we find that medicine has always been guided by experimental science. By experiment and by science it is compelled to march forward. This was true in the time of Harvey, for that immortal physiologist had to meet the opposition of physicians. This was true also in the time of Lavoisier, when by a few decisive experiments he proved the chemical nature of the phenomena of life. But how much more true is it at the present time since Pasteur has by experiment laid open a whole world, and has warranted us in conceiving the widest hopes for the future of medicine?

The parts of the man of science and of the physician are very different. The physician ought to be conservative, applying methodically the teaching and the precepts which he has received. He has no right to experiment upon his patients, or to permit human life or human suffering to be risked on fantastic theories. But the man of science ought to be a revolutionist. He ought not to be content with the doctrines which he has been taught. The opinion of the master ought to be but a light weight upon his mind. He ought to seek on every hand for facts which are new and even improbable. Darwin says somewhere that he had made the experiments of a fool, and often it is right to attempt that which appears contradictory to

all the most received and classical opinions. Without this spirit of adventure, without this scientific daring which opens up new horizons, there is no progress.

The task of the explorer or of the pioneer is not that of the physician. He ought to be careful to keep himself abreast of all scientific progress in order that his patients may have the benefit of it, but he cannot advance the progress of science, save within restricted limits. Having no right to experiment, he is almost powerless to solve the difficult problems which arise.

It is the duty of the chemists, the physicists, and above all the physiologists, to guide medicine into the new ways. They have not to take the heavy responsibility of a human life upon their shoulders, and nothing ought to check their audacity. You, gentlemen, have not the right thus to be audacious: you need prudence and moderation, and, convinced as I am of the power of experimental science, I still think that the applications which the chemists and the physiologists suggest to you should only be accepted with considerable caution. It costs us nothing, after a few experiments which have succeeded fairly well, to say to the physician, "Try that on your patients." You know very well that our responsibility is *nil*, and that the ancient axiom *primo non nocere*, an axiom which ought to be your strict rule of conduct, does not in any way apply to us. You see, therefore, that it would be unjust to make it a matter of reproach to physicians and surgeons that they have not made great scientific discoveries. This is not their mission. It is theirs to relieve human suffering, and to seek among new scientific truths that one which is most proper to relieve or to cure the sick.

Nor can I understand how anyone should have wished to create an antagonism between medicine and science. To suppose that they are in contradiction is to show that we understand nothing about either the one or the other. It is not reasonable to assert that the one is superior or inferior to the other: they are different in their means and in their ends. They are mutually complementary, and both are equally necessary.

If I were ill most assuredly I would not seek the assistance of a chemist, or of a physiologist, and medicine is not to be learned from the books of Claude Bernard or of Pasteur. Clinical instruction is necessary, such as long observation of patients alone can furnish. Prophylaxis, diagnosis, therapeutics are not to be learned in scientific books. Some thing else is necessary—observation, long, patient observation, the old Hippocratic observation, without which there can be no good physician. Young students must be guided in the examination of patients by experienced practitioners and no one, I presume, would be guilty of the folly of proposing to replace the clinical ward by the laboratory.

But without laboratories the clinical department must remain incapable of scientific advance, and this condition of stasis is assuredly undesirable; for in spite of all the progress which has been made, much yet remains to be done. Are not tuberculosis and cancer, for example, the disgrace of medicine? I appeal to all medical men here present. Is there any one of you, gentlemen, who in the presence of such painful modes of death, does not feel himself humiliated to the bottom of his soul by his powerlessness.

Well, this feeling of our present powerlessness against disease ought to stimulate us to work. The work to be done is enormous, and we must none of us grow weary of our task. We physiologists must seek new facts, we must seek and seek again, seek always without being afraid of the boldest hypothesis, and without putting any limit to our audacity, without troubling our heads as to the practical consequences which may flow from our discoveries, having only truth—divine truth—for our object. As for

you, gentlemen, it is your duty to follow with the warmest interest both the general effect and the detailed results of biological discoveries in order to attempt to find some practical application for them. From this unceasing collaboration progress will be born. But it is necessary that men of science and physicians should both be animated with these two governing sentiments—faith in science and love of men.—*Brit. Med. Journ.*, Sept. 18, 1897.

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• THERAPEUTICS OF PLAGUE.

THE PLAGUE, as it is now understood, namely, the Bubonic Plague, is perhaps one of the oldest, as it is one of the most dreadful, of diseases.

We are inclined to think that the plague of boils described in Exodus ix, 8-11, was the veritable bubonic plague. It is alluded to in Deuteronomy xxviii, 27, as the boil of Egypt. So that here we have the oldest record of the disease, and singularly enough Egypt, which has long enjoyed the notoriety of being its endemic home, is, in the sacred writings of the Hebrews, credited with having been its birthplace.

Thus the plague,—which devastated Europe from the sixth to near the commencement of the eighteenth century, which lately devastated Pakhvi and Hong-Kong, which is now devastating the Bombay Presidency, which has already spread its dreaded influence outside the limits of that presidency and is threatening, on the wings of the famine, to sweep the whole of India with its besom of destruction,—is a disease as old as the time when the Israelites were in bondage in Egypt, and therefore at least as old as 1500 B. C.

From all the accounts that we have of the disease, we find it to be one which is attended with the largest mortality. In its mildest visitations that mortality has never been below 50 per cent. In its most virulent forms the mortality has been as high as 90 or even 100 per cent. In the plague which broke out on the banks of the Volga in 1879, there were in the village of Vetlanka 417 cases out of a population of 1700, and of these 417 cases 362 died, that is, 90 per cent. In some other villages on the Volga, the disease was even more severe, indeed, it assumed the form of death itself, as not a single person that took the disease recovered. The fact of this high mortality shows that medical treatment has been of very little avail in arresting the progress of the disease or of helping recovery from it. And this is the testimony of all who have written upon it after a careful study of its history or from personal experience.

Thus Liebermeister (Zimssen's *Cyclopædia*) says—"The treatment of the plague consists principally in *prophylaxis*. The treatment of individual cases can only be expectant and symptomatic."

Aitken (*Science and Practice of Medicine*, 1880) says—"It is to be regretted that recent experience has not in any degree advanced the successful treatment of the plague."

Dr. J. F. Payne, who had personal experience of the disease, writes (*Encyclopædia Britannica*, 9th Ed) under date 1885: "No special line of treatment has proved efficacious in checking the disease once established."

We could multiply testimony to the same effect of other eminent members of the old school. But it is needless to do so. That the disease by its very nature is of the most serious kind, and attended with heavy mortality, there cannot be the slightest question. But whether the treatment adopted by the old school, especially in olden days, did aggravate the disease and add to the mortality, that would have naturally resulted from it, is a question which demands serious attention from its importance. This much is certain that some of the judicious members of that school have admitted the injuriousness of that treatment. Thus Dr. Gavin Milroy, one of the greatest authorities on Epidemic Diseases, has said: "There is little on this head (curative treatment) in medical writings at all satisfactory or encourag-

ing in respect of the recovery of the sick, but much that is admonitory as to the baneful effects of an over-active and meddlesome medication. ... The perusal of recorded histories of cases of plague, as observed at Malta in 1813, and in Egypt in 1835, leaves the impression on the mind that the patients would have fared better had they been treated with light nourishing food and cordials frequently administered, together with simple saline or acid medicines, and without active purgation, blood-letting, and such energetic measures."

It is satisfactory to see in this connection that Dr. Dyson, Sanitary Commissioner of Bengal and member of the Plague Commission, has, in his recently published list of requisites for plague Hospitals and Segregation Camps, condemned the use of antipyretics such as antifebrine, phenacetin, as they have been found to produce unfavorable results in plague cases. As just at present there is a rage for the use of these violent drugs, we trust that those who have to deal with these cases would bear in mind this note of warning. Plague is essentially a disease with adynamia of the gravest description as its pronounced condition, and therefore nothing should be done to aggravate that condition.

It should be remembered that we have as yet had no testimony from members of our own school. Indeed, homœopathy has not yet had its trial in this disease. And this for the simple reason that there has been no occasion for it, neither in Europe where plague had ceased to exist before homœopathy developed into a workable system, nor in America where the disease is happily unknown and we hope will remain so.

Hence in homœopathic books, with but few exceptions, the disease is not mentioned at all. The exceptions are in the case of those treatises the authors of which for the sake of completeness would not omit anything.

Thus Drs. Marcy and Hunt, in their *Homœopathic Theory and Practice of Medicine*, says: "If we may be allowed to judge of its nature from those phenomena which seem to be characteristic, we suppose the following remedies will correspond to its manifestations, and prove to it, homœopathic, namely: *Arsen.*, *Acid-nitr.*, *Rhus-tox.*, *Veratrum*, *Merc.*, *Bell.*, *Chin.*, *Ipecac.*, *Carbo-reg.*

Dr. Richard Hughes, in his admirable little *Manual of Thera-*

peutics according to the Method of Hahnemann, speaking of the Plague, says—"Homœopathy has no practical knowledge of its therapeutics; and happily, none of us are likely to have any occasion to treat it. If we had, Arsenic and Lachesis are the two medicines on which I should feel disposed to rely."

Dr. Constantine Hering, in the *North American Journal of Homœopathy*, for Aug. 1879, writes: "Lorbacher proposes as the main remedies for the plague: *Lachesis*, *Arsenicum*, *Carbo vegetabilis*, *Chin. Sulph.* and *Arsen.*, *Phosphorus*, *Secale*, and *Anthrokokali*. We may mention here our proving of *Badiaga*, which might be considered a remedy against the plague. What *Lachesis* will do is uncertain. Still more uncertain is *Arsenicum*. *Chin. ars.*, not being proved, we may leave aside altogether. *Kali phos.*, proposed by Raue, we permit ourselves to mention as very promising. *Stramonium* has more similarity to the plague symptoms than *Belladonna*, and *Silica* more than *Hepar*. *Loimine*, a preparation of the pus of the plague, brought here by Dr. Thuillé, has cured cases of the greatest importance; one with suppurating swellings along both sides of the neck, and cured them permanently."

Dr. Raue, who is mentioned by Dr. Hering as having proposed *Kali phos.* as a remedy, contents himself with giving the quotation from Hering under the article Plague in his *Special Pathology and Therapeutics* even in its latest edition, 1896, without making any additional suggestions of his own.

Dr. Winterburn, in his article on Plague in Arndt's *System of Medicine*, after giving the above quotation, says: In addition to the remedies mentioned by Hering, I would like to suggest *Crotalus*, as possessing analogically a more intimate relation to the plague than either *Lachesis*, *Arsenicum*, or *Phosphorus*; though here again we cannot know what is the right remedy until the patient is before us, or what a remedy will do until we have clinically tested its efficacy." It is due to Dr. J. W. Hayward, of Liverpool, to mention that in his elaborate and exhaustive monograph on the *Crotalus* Poison, he had recommended this remedy for the disease in the following words: "This (plague) being, apparently, a typhus fever, complicated by carbuncles and engorgement of the lymphatic glands, and *Crotalus* being one of the best remedies for each of these constituents, it will doubtless

be found one of the best remedies in the treatment of plague, of which, indeed, *Crotalus* Poisoning presents a very complete picture."

We ought to make an exception to the statement we have made above, namely, that homœopathy has not yet had its trial in plague. The exception is a solitary one, but a very remarkable one also. The late Dr. John Martin Honigberger, who says he learned homœopathy at its very source, from "the father of homœopathy, the celebrated Doctor Hahnemann," made trial of its medicines with success in the plague which was raging at Constantinople in 1836. "In order to have some experience in this matter (of plague)," says he (*Thirty-five Years in the East*, vol i.), "I tendered my services at once to the plague-hospital at Pera (one of the Christian suburbs of Constantinople), where the poor patients were left to their fate, as no medical assistance, or any other aid was to be had. Without any authority or permission, I attended them at my own expense. I proceeded, to the satisfaction of all the attendants and patients, to treat the infected according to the homœopathic principle, and my endeavours were mostly crowned with success. All this, effected by the most simple treatment, did not fail to procure me, in a very short time, a great reputation, so that, after the extinction of the plague, and the abolition of all quarantine, I was in great request amongst the most respectable private families. But, before I proceed to prove the efficacy of the minute doses of homœopathic medicines, I must first speak of a special remedy, which proved very efficacious, employed as a prophylactic or curative; and I dare to say, with respect to the plague, it might be considered as a specific. During my stay at Constantinople," he continues, "I frequently had an opportunity of making the observation that many individuals, especially Armenians, wore a string, to which was attached a bean, called *Strychnos Faba St. Ignatii*, as a preventive against the plague. Having been informed that this bean was acknowledged to be an effective one, I administered it in minute doses, as a medicine, and that with the best success. The particulars will be mentioned in the course of this work."

The particulars here spoken of are, that two years after, on his way to Lahore, he himself caught the plague at Palee and



cured himself with "the small pills of the above-mentioned *Strychnos Faba St. Ignatii*," after the second dose of which he relates that "I began to perspire to such a degree that my mattress was wetted through. In consequence of this perspiration, I got rid of the fever and anxiety, and entertained the hope of being restored to health, although the pains in the groins still continued. The swelling of the glands remained for three weeks, as I did not employ any local remedy."

It is a pity that the worthy doctor has not mentioned, in his book from which we have quoted, what other homœopathic medicines he had employed against the plague with success at Constantinople. Perhaps he did not think it necessary to do so, having found in *Ignatia* almost a specific. Here we have a medicine, not suggested on theoretical grounds, but discovered by a happy accident, actually used and found beneficial. Dr. Honigberger's own case might have been a mild case of plague, but that it was a genuine case of the disease must be evident from the circumstances under which it occurred and from the symptoms given, and there is no doubt that *Ignatia* did succeed in cutting short the disease.

The question whether *Ignatia* will prove both a prophylactic and a curative remedial agent, or either, in the present epidemic, can only be answered by clinical verification.

The most important question for homœopathic physicians to consider is,—Has *Ignatia* symptoms, developed either by provings or in poisonings, which will warrant its use in plague? We believe it has some of the pronounced preliminary symptoms, such as: goes about perplexed, dazed, stupified; a kind of apathy in the whole body, indifference to everything; dazedness, dulness and confusion of the head; intoxication; throbbing headache, especially at every beat of the heart and arteries; retching, nausea, and ineffectual efforts to vomit. *Ignatia* has not been observed to produce inflammation and swelling of glands in the inguinal and femoral regions, but it has produced shooting pains in those regions. It has produced aching and sensations of swelling and actual swelling of the glands of the neck, chiefly of the salivary glands. It has produced fever with chills and shiverings, with the peculiarity of there being thirst during the chilly stage. These are symptoms which correspond to those of the first stage of

plague, and therefore we are of opinion that Ignatia may be used both as a prophylactic, and as a curative remedy in that stage. At least it deserves a trial.

Now what of the score of remedies which, we have seen, have been suggested on theoretical grounds. Are they all, or any of them, likely to be useful in the disease? Are there any others in our materia medica which, on the principle of similars, may also be useful? If the principle of similars be a natural law then we ought to be able to select out of at least two hundred well proved drugs some which will meet cases of the Plague. The founder of Homœopathy has shown how, in the case of cholera before he had seen a single case, he could predict what would be the likely remedies for it. It is true other remedies than what Hahnemann had recommended have been discovered after him, but this only shows the developable character of the resources of a materia medica pura, of a materia medica based upon provings, and the necessity of individualization of cases.

In the selection of remedies regard must be had both to the pathology and the symptoms of the disease. Though essentially a septicæmic affection depending upon the introduction of a specific germ or morbid virus into the system, it may be divided into varieties according to the parts or organs most prominently affected. Thus Drs. Dyson and Calvert, in their Report noticed in our September number, make four varieties, (1) the bubonic, (2) the septicæmic, (3) the pneumonic, and (4) the intestinal, according as the lymphatic glands, the whole organism, the lungs, and the intestines are involved. What the authors call the "septicæmic" variety is but the most virulent type of the disease. When the disease itself is but a form of septicæmia, to make a septicæmic variety of it does not appear to us to be quite logical. Nevertheless it is useful to bear in mind the four varieties here mentioned, as affording a sort of rough individualization of cases and therefore serving as a help for the selection of remedies.

Of the drugs mentioned by various authorities mentioned above, we would give preference to *Crotalus*, *Lachesis*, *Phosphorus*, and *Arsenicum*, their importance being in our opinion in the order they are mentioned, and we would add to these *Cobra*, *Mercurius Corrosivus*, *Carbo Animalis*, *Carbolic Acid*, and *Baptisia*.

*Crotalus* deserves the first place in the most virulent types, especially when associated with a hæmorrhagic tendency. The following symptoms of the nervous, circulatory, and other systems as affected by this venom, show what an intimate resemblance they bear to the symptoms of the worst forms of the disease: Unusual obtuseness and stupidity; coma; languor and delirium; extreme prostration, sinking and faintness; staggering and falling; vertigo, with intense headache, especially in forehead above the eyes and in temples. Countenance deathly pale, and often expressive of calm indifference, with marked prostration and apparent freedom from pain. Eyes half-open and staring. Nausea and vomiting of bile. Tongue much swollen and too large for the mouth. Constipation or diarrhœa with violent thirst, with great anxiety, uneasiness and burning throughout the body. Dry consuming fever, with dry tongue and intense thirst, pulse very weak and frequent, respiration difficult and hurried. Hæmorrhage from the bowels, gums, lungs, and indeed from every part of the body. Inflammation and swelling of both inguinal and axillary glands. We can confidently say that a case of plague which will present a majority of the above symptoms will be benefited, and, if not *in extremis*, will be cured.

*Lachesis* closely resembles *Crotalus* in the great prostration and septicæmic condition which it produces. The tendency to hæmorrhages is much less under it than under *Crotalus*. The characteristics of the fever also are different. There is under *Crotalus*, singularly enough, profuse perspiration during the chilly stage, which is wanting in *Lachesis*. The *Lachesis* patient courts the heat of fire from which he feels better, a symptom not found under *Crotalus*.

*Cobra* is a more energetic poison than either *Crotalus* or *Lachesis*. Indeed, it is the most virulent of serpent venoms. Its action upon the nervous system is more profound than upon the blood. Hence it should have a place where the prostration is unusually great at the very outset, and there is imminent danger of failure of the heart. The *Cobra* patient has even greater longing for fire during the chilly stage than the *Lachesis* patient. He cannot stay away from it, and feels better from the radiant heat. It is true that the disorganizing effect of *Cobra* upon the blood is less than that of *Lachesis*, and much less than that of

*Crotalus*, but it is not altogether nil. Hence though in cases of plague where hæmorrhages are a prominent symptom preference should be given to *Crotalus* and even to *Lachesis*, we must not forget *Cobra* when the other symptoms correspond with it.

For a more detailed analysis of the distinguishing characteristics of the fevers of these serpent venoms we would refer the reader to the October and November numbers of this Journal for 1894.

In the gravest, the *foudroyant* cases, where death seems imminent, we would recommend hypodermic injections of the serpent venoms (of course in dilutions) as more efficacious than their administration by the mouth. We need hardly add that for purposes of injection we do not mean a mixture of the three, but only the particular one which may be deemed appropriate to the case under treatment.

*Phosphorus* should have the preference in cases where the lungs are involved; *Baptisia* in those where there is diarrhœa as in typhoid fever.

It is a positive fact that many cases of slow arsenical poisonings can scarcely be distinguished from low, adynamic fevers of the typhus or typhoid character. On this foundation *Arsenicum* is used in our school for fevers of that description. Hence it is very likely that it will be found appropriate in some cases at least of the plague, especially of the gastric and intestinal variety, in which insatiable thirst, uncontrollable vomiting and diarrhœa are present. Its appropriateness in particular cases can be easily found out by the experienced and intelligent homœopathic practitioner. In this connection we may state that, as mentioned by Dr. Imbert-Gourbeyre, "the anatomist, Jacques de Carpi, who was the first, it is said, to employ mercurial frictions in syphilis, is believed to be the inventor of the arsenical amulet. According to Kircher, in his work upon the Plague, it is a potent means for drawing out the pestilential virus, its *similar* among animal poisons. Willis does not hesitate to commend this prophylactic procedure, theoretically as well as practically. It is said that Pope Adrian VI. was preserved from the plague by its means."

That amulets do act in numbers of cases it is impossible to deny. But how they do so, whether by simply acting upon the imagi-

nation, or by exerting some subtle physical influence, is more than our crude philosophy can at present explain. Whatever the *modus operandi*, it is neither prudent nor philosophical to object to their use, especially when medicine has proved so acknowledgedly impotent that we are obliged to have recourse to the barbarism of quarantine and the cruelty of dragging away patients from their dearest surroundings. There would be no harm if every body were to wear, in these days of plague panic, an amulet either of St. Ignatius's bean or of Arsenic on the arm, or perhaps better of one on one arm and of the other on the other arm.

We would recommend *Mercurius Corrosivus* where the involvement of the glands forms the prominent feature of the disease. It has the further recommendation of being a proved antiseptic to the plague bacilli, as of all other pathogenic bacilli generally. The homœopathic practitioner need not be told that this antiseptic property will be displayed even in our dilutions when administered internally.

*Carbolic Acid* has almost all the chief symptoms of the disease: with the exception only of glandular enlargements. It may be used at the very beginning when the headache is very distressing, and in the course of the disease when septicæmia becomes general and the discharges become very foul and offensive. Even in our attenuated doses given internally it will be found to exert a remarkably antiseptic influence.

*Carbo Animalis* is likely to be beneficial in mild cases which begin with enlargements of the glands. It would be worth trying it also as a prophylactic.

The importance of *Kali Phos.* as a tissue remedy, especially in affections of the nervous system marked by great debility and in all putrid and decomposing processes, was first pointed out by Dr. Schüssler, of Oldenburgh, North Germany, in 1873. The subsequent proving of the drug under the direction of Dr. H. C. Allen, and clinical experience, would seem to have realised the anticipations of Schüssler. Drs. Boericke and Dewey, in their work on *The Twelve Tissue Remedies of Schüssler* remarks: "It corresponds to the hosts of conditions known as *neurasthenia*, in which field it has won its greatest laurels. It is a restorative in muscular debility following acute diseases, myalgia and wasting of muscular tissue, all dependent upon impaired innervation. Atrophic

conditions in old people. In cases arising from rapid decomposition of the blood corpuscles and muscle juice, such as hæmorrhages of a septic nature, scorbutus, stomatitis, gangrenous angina, phagedenic chancre, offensive carrion-like diarrhœa, adynamic or typhoid conditions, &c." We have no experience with *Kali. Phos.* But if half of what Drs. Boericke and Dewey say, has been based upon positive clinical data, then the drug is likely to be a very useful one in plague, and we have no hesitation in recommending its trial when success with the remedies mentioned before has not been satisfactory.

Of *Loimine* introduced by Dr. Theuillé we are not disposed to pass an opinion. It has not, so far as we have been able to ascertain, been proved, and we are loth to use unproved drugs. There is, we are sorry to say, too great a tendency in these days to use drugs which have never been proved; and this is specially the case with the nosodes. With the clinical experience of Dr. Theuillé before them, our colleagues may, if they chose, use the drug in cases where other remedies have failed, and in this way experience may be accumulated to justify its further use on clinical grounds. At any rate we are bound to say that when the hypodermic injections of such toxic substances as massive doses of Haffkine's prophylactic serum and Yersin's curative serum, are unhesitatingly had recourse to, there need not be much scruple in the use of *Loimine* in infinitesimal doses by the mouth.

As regards the dilutions in which the medicines are to be administered, we should prefer the lower, from the 3rd to the 12th decimal. There may be occasions for using the higher, but we would leave each practitioner to use his own dilutions.

In view of the danger of having the plague amongst us, we have thought it our duty to make the aforementioned suggestions on the treatment of the disease which is likely to be useful. In the absence of personal experience we have been obliged to rely upon reported symptoms, especially those given so clearly and fully by Drs. Dyson and Calvert. As in all diseases, so in plague, individual cases may present peculiarities which will demand remedies other than those suggested above. Again, in the course of treatment of particular cases, the necessity may arise for the exhibition of intercurrent remedies, and, as far as we can judge, there is likely to be a call for *Opium*, and one or other of the solanaceous narcotics, *Belladonna*, *Hyoscyamus*, *Stramonium*.

In this time of India's sorest need, not less urgent than widespread famine itself, we trust our colleagues throughout the world, would be good enough to send in any further suggestions that they may deem necessary, which we shall be glad to publish in this Journal for the benefit of our countrymen.

## RENEWED ACTIVITY OF THE BENGAL GOVERNMENT AGAINST THE PLAGUE.

It is now fifteen months that the plague commenced its ravages in Bombay city, the district of Mandvi having been the first to be attacked. Had Mandvi been at once put in quarantine, there would in all probability have been the end of the epidemic. But this was not done, the authorities having been very slow even to recognize it as the dreaded disease, and the result has been the most disastrous that could possibly be imagined. Not only has the plague spread to the other parts of the city of Bombay itself, but it has spread to other parts of the presidency, Karachi and Poona successively falling victims. Karachi has, it would seem, got rid of it, but unfortunate Poona is still suffering most severely from it. There are not only no signs of the epidemic disappearing from Poona and Bombay, but there have been serious recrudescence of it of late. Nor is this all. The disease has spread outside the limits of the Western Presidency. It has made its appearance in Madras, in the Panjab (at Jallandar), and in the North-Western Provinces (at Hardwar).

Fortunately Bengal has up to this time escaped, and this is probably due to the strict vigilance that is being kept over passenger traffic at Khana, Damukdia and Katihar. But the very severity of the measures which are being taken to prevent its introduction into Bengal has a tendency to frustrate their object, by inducing people to conceal actual cases and devising means to elude detection by the inspecting officers. So that the danger of its introduction is not only not passed but has to be apprehended every day, we may say, almost every moment.

The Government of Bengal has lost no time in taking prompt measures "for the protection of the Province, and more especially of the city of Calcutta;" It has just (10th Nov.) issued a Plague Notification prescribing a Regulation in supersession of the Regulations prescribed by the previous Notifications of the 10th February and of the 12th March; and it has taken this opportunity "to add to the numbers of the Medical Board appointed by the Government Resolution No. 937 T.—M., dated 10th Oct. 1896, to define its functions more precisely, and to change its designation, which has given rise to some misapprehension, from 'Medical Board' to 'Plague Commission.'"

Exception has been taken by the native community, as voiced in some of their organs, to the constitution of the Plague Commission on the ground that while of 20 members 17 are Europeans, 3 only are natives who are all medical men; and while there are 8 European laymen, of whom 3 are non-official, there is not one single lay native on the Commission. The complaint, we are bound to say, has reason on its side. There should have been at least one lay native member, and the choice could not

have fallen on a worthier person than the Maharaja Bahadur Sir Jotendra Mohan Tagore, K.C.S.I., who occupies the first place in Hindu society and enjoys its fullest confidence.

The Notification, after appointing the Commission, lays down Rules (1) relating to Villages and Non-Municipal Towns, (2) relating to Municipal Towns and Cantonments, (3) of General Application.

Under (1) there are twenty rules regulating the appointment and duties of plague authorities, the duties of proprietors of lands, of Station and Out-post Officers, Rural Police and Chaukidari Panchayets, of Railway Police, especially as regards breaking of journey by travellers from infected areas, of Magistrates and superior Police Officers, and of the Public.

Under (2) there are thirty-one rules regarding the definition and appointment of Health Officer; the duties of the Town Police, of the Railway Police, of Magistrates and superior Police officers; committees of inspection; general sanitary precautions; insanitary premises and blocks of huts; over-crowded dwellings; prohibition of rag-picking; provision of hospitals, of accommodation; reports from factories, by house-holder, and by medical practitioner; disinfection and cleansing by house-holder, and by Health Officer; right of entry and examination; segregation; evacuation of street or quarter; duty of compliance; disposal of dead; ambulances; and disinfection of public conveyances.

Under (3) there are rules for compensation, for the control of the Health Officer, and for the regulation of expenses.

The bare enumeration, as given above, of the subjects brought under the operation of the rules shows that they are more comprehensive and searching than the rules under previous Regulations; and, therefore, are generally calculated to act more efficiently both in preventing the importation of the disease, and in preventing its spread when imported.

In view of the gravity of the danger which is threatening us every moment we would urge upon our countrymen the duty of faithfully acting up to them. The object aimed at, it must be remembered, is the protection of the whole country in which every individual must be deeply and personally interested. The saving of life is a paramount obligation to which everything else, so far as not flagrantly inconsistent with religious scruples, ought to be subordinated.

While we thus urge our countrymen to loyal obedience to the orders of Government issued for our benefit, we would urge Government to reconsider a few rules some of which (most of those relating to the police) are likely to prove unpractical, some (37 and 38) too harsh and arbitrary, and one of which is calculated to frustrate the very object for which the rules have been framed. We have space only to say a word or two on this latter, which is given below in extenso with the explanations:



46. *Segregation.*—(1) If on examination of any person the Health Officer suspects that such person is suffering from or infected with plague, he may cause such person to be removed to a hospital, and may arrange for his detention, dieting and medical treatment therein. He may also cause the other occupants of the house in which such person resides to be removed to a segregation camp and to be detained under observation for ten days. In the case of *parda-nashin* ladies a lady doctor shall conduct the examination.

(2) When private plague hospitals or segregation camps have been provided and fully equipped by or for particular castes, classes, joint families or associations of families, and the Health Officer, or, in Calcutta, not less than two members of the Plague Commission empowered thereto by the President, have in writing approved of the site, plan, furniture and arrangements for isolation and medical administration of such hospitals and camps, sick or suspected persons may, if they so desire and if accommodation is available, be removed to the private hospital or segregation camp constructed for the use of the caste, class or family to which they belong, instead of to a public hospital or camp.

(3) In both public and private camps and hospitals separate and suitable accommodation shall be provided for females, and in the case of a female who by the custom of the country does not appear in public, her *parda* shall be strictly preserved, both in removal to the camp or hospital and during her stay there.

(4) The relatives, friends, *hakims*, *bairis* and priests of sick persons shall be allowed free access to them during the day-time, subject only to such precautions as the Health Officer may consider necessary.

(5) Members of the family of a sick person who are in attendance on him may also be admitted to the hospital, whether public or private, provided that they shall sleep in the compound in suitable accommodation provided for the purpose, and not in the hospital itself.

*Explanation 1.*—It is not necessary that hospitals provided in accordance with this rule should be constructed in remote or inconvenient situations.

*Explanation 2.*—In Calcutta, persons desirous of taking advantage of clause (2) should at once communicate with the Plague Commission and satisfy that body of their ability to provide adequate hospitals or camps when plague breaks out. In other places, application should be made to the Health Officer.

*Explanation 3.*—In Calcutta private hospitals and camps may be closed by order of the Plague Commission, if the Health Officer reports that medical attendance and segregation are not maintained to his satisfaction, or that the conditions on which such camps or hospitals were sanctioned are not complied with. In other places, this power of closing private hospitals and camps will be exercised by the Magistrate of the district on the report of the Health Officer.

In Rule 31 of the original draft Regulation, home segregation in a very partial form was allowed, but after consulting Dr. Lawson whose experience at Hong Kong and at Bombay has led him to believe in the absolute inefficiency of home-segregation, Sir A.

Mackenzie was forced to modify it so as to disallow home-segregation altogether, but in view of the disease diminishing in Bombay and thus leaving very little chance for its introduction into Bengal, the Regulation was held in abeyance, in order not unnecessarily to excite alarm among the native residents of Calcutta." The circumstances, however, have since changed considerably for the worse, and Government has been compelled to give fresh attention to it. But notwithstanding its entire sympathy with the wishes of the native community and its anxiety to make every concession that is consistent with the paramount duty of preventing the spread of the disease, it could not allow home-segregation even in the partial form prayed for by our community and which was promised at the Conference held under the presidency of Mr. Glass in September. The utmost that it could do has been to modify Rule 31 into the form (now Rule 46) which we have quoted above.

We fully sympathise with the anxiety of Government not to do anything which may have the effect of spreading a disease against which medicine has hitherto proved absolutely powerless. And it is not so much out of respect for the religious feelings and social customs and prejudices of our people as out of sincere conviction of the evil results likely to arise from this decision arrived at by Government that we are constrained to say that in this matter of the gravest importance it has been led to commit a mistake. The native community has already taken alarm, and the consequence, we are afraid, will be, in the case of the plague unfortunately breaking out, that people will do their best to conceal cases, than which there cannot be a graver disaster.

It must be admitted that clauses (4) and (5), by allowing patients to have some of the members of their own family to be around them, and by allowing their own medical attendants, their friends and their priests to visit them, in isolation hospitals, have taken away much of the severity from Rule 31 as it stood after Dr. Lowson's suggestions; yet it must be admitted also that private isolation hospitals cannot be numerous enough or capacious enough for the numerous respectable poor who, while they have good ancestral houses, cannot have the means to contribute towards the building of such hospitals; and for them to "expect the richer members to assist them in preserving their social usages intact by providing special hospitals and camps for them to take refuge in," would most likely turn out to be depending upon a vain expectation.

It is to such people and others who have like them houses where segregation is not only possible but desirable that we would urge Government to allow home-segregation.

## EDITOR'S NOTES.

**Intussusception; Nine Inches of Gut passed per Rectum.**

LAURENT AND PALEY (*Bull. de la Société Anat. de Paris*, May-June, 1897) record a fatal case of intussusception, the patient apparently refusing operation. A woman, aged 33, had feverish symptoms, headache, and gastric trouble for a few days, when suddenly acute obstruction set in. There was intense pain in the right iliac fossa, where a tender, elongated tumour could be felt. Appendicitis or intussusception was diagnosed. At the end of a fortnight the feverishness abated, and spontaneous diarrhoea set in, the abdomen previously much swollen became flat. Nine days later very foetid stool was passed, and in it was found a sloughy mass, 25 cm. (9½ inches) long. It consisted of ileum with part of the caecum. For a week the patient did well, then vomiting and foetid diarrhoea set in, and death occurred a few days later. No mention of any necropsy is made. Laurent and Paley observe that this is not the first case where the free elimination of the intussuscepted gut was not followed by ultimate recovery.—*Brit. Med. Journal*, Oct. 2, 1897.

**Catheterism of the Ureters in the Male.**

In the *Journal of Cutaneous and Genito-Urinary Diseases*, June, 1897, is published an account of this important innovation, which Dr. Meyer brought before the New York Academy of Medicine. It constitutes an extension to the male of methods devised by Dr. Howard Kelly in the case of the female. The following is the mode of procedure. The bladder is washed out and cocaineised and from five to seven ounces of clear fluid are introduced. The ureter cystoscope containing the ureter catheter is then passed. After the interior of the bladder has been inspected and the ureteral openings have come into view one of them is approached and the catheter is pushed forward. The catheter is not allowed to pass more than two inches into the ureter and the wire mandrel is withdrawn. As a rule the urine will begin to flow drop by drop. The writer avers that if his directions are properly followed there ought to be no difficulty in skilled hands performing the operation. In only one did he fail, and here there was evidently congenital contraction of the mouth of the ureter. In the discussion which followed there was a consensus of opinion that the operation was by no means so easy as Dr. Meyer considered. Also it was pointed out that the introduction of the catheter might produce sympathetic anuria in the only working kidney. The value of operation, especially in cases where nephrectomy is proposed, is obvious.—*Lancet*, Sept. 11, 1897.

**Death by Lightning.**

With reference to an annotation bearing the above heading in the *LANCET* of Sept. 4th, we have received a letter from a medical correspondent pointing out that there were certain inaccuracies in our account of the details of the sad case, and kindly supplying us with the following interesting particulars which, we think, should not go unrecorded. Our correspondent saw the deceased about four hours

after death, by which time the body had been undressed and washed. The hair was singed in front of and above the right ear, and there was a little blood in the meatus. The skin of the front of the neck was dark-red and stiffened, so that it did not pinch up so easily or in so thin a fold as the healthy skin. This change extended to about the posterior edge of the sterno-mastoids, and faded gradually. Down the chest and abdomen were two well-defined, sharp-edged, irregular, ribbon-shaped bands in which the skin was dark-red, uniformly depressed, and hard. Quite at the lower part of the abdomen these ceased, and here again there was singeing of the hair. The thighs were quite untouched, except for a few (six or eight) small oval spots of this reddened, depressed skin scattered over the upper part of the right thigh (front). On the front of the left leg, from knee to ankle, were several irregular streaks of the same nature as the bands on the chest, some of them from two to three inches long and about a quarter of an inch broad, and there was a similar condition on the back of the right leg, from knee to ankle. On the under surface of the right heel was a transverse laceration an inch long with healthy edges. Nothing corresponding existed on the left side. No bones were broken, no skin was torn off, nor was the right leg torn or blackened.—*Lancet*, Sept. 18, 1897.

### **The Bacillus of the Plague in Formosa.**

Ogata (*Centr. b. f. Bakt.*, xxi, 20-21) records an important series of observations made on behalf of the Japanese Government during the recent epidemic of plague in Formosa. In the town to which he went there were 132 cases in a month, with 56.4 per cent. of deaths; the outbreak was apparently preceded by an epidemic of rat plague. Ogata tabulates the differences between the plague bacilli described by Yersin and Kitasato, which must obviously be quite different in nature. His own observations, conducted upon 27 patients and bodies, revealed the presence of a bacillus corresponding to Yersin's, and therefore not to Kitasato's. It was pathogenic for mice, rats, rabbits, guinea-pigs, and cats, while dogs, fowls, and pigeons were refractory. He demonstrated its presence in rats dying during the epidemic and in the fleas infesting them, but never succeeded in obtaining it in the blood of a living patient. It could be found in the lymph glands of living sufferers, and in the blood and internal organs of the dead. In susceptible animals it invariably produced a plague-like disease. He isolated it from the urine of one plague patient, and from the bile and urine of two subjects dead of the disease. It appeared mostly to be conveyed by fleas and mosquitos. The blood, lymph glands, and internal organs of patients and corpses often contained other micro-organisms, particularly staphylococci. The bacillus had but little power of resistance to antiseptics. It was killed at once by 1 in 20 carbolic acid; in 1 in 200 it survives five minutes, but after 15 it can no longer grow on nutritive media. In 1 in 1,000 sublimate solution it perished at once, in 1 in 10,000 not for five minutes. Saturated lime water for five minutes stops its growth permanently, while sunlight kills it in less than four hours. The author could not detect it in the walls of plague houses.—*Brit. Med. Journal*, Oct. 9, 1897.

### Orthoform.

A. EINHORN AND HEINZ (*Munch. med. Woch.*, August 24th, 1897) first of all discuss the chemical constitution of cocaine and its relatives, as in this way they have been able to prepare the new local anæsthetic, orthoform. This body is a white, light powder, without smell or taste. It is only partially soluble in water, but enough is brought into solution to make the fluid anæsthetic. It combines with hydrochloric acid, forming a very soluble body, but this hydrochlorate cannot always be used, as it irritates some mucous membranes, such as the conjunctiva. Anæsthesia is only induced in the places with which the orthoform comes in contact. The authors describe a case in which a 10 per cent. ointment was applied to a painful wound on the outer side of the chest. Orthoform acts as an anæsthetic wherever it comes into contact with nerves, and thus it has no effect when applied to the unbroken skin. If it be applied to a burn of the third degree, the anæsthetic effect is remarkable. When compared with boracic acid it was found to be much more efficient. It also allays the pain of ulcers, whether cancerous or other. In one case as much as 50g. was sprinkled on a wound within a week, showing that it is quite harmless. It is strongly disinfectant, hindering decomposition and fermentation. Orthoform was also useful in ulceration of the larynx; after some of the powder was blown in the pain was relieved for 24 hours. In gastric ulcer and carcinoma it was also of service, but much less so in chronic gastric catarrh. For external use the free orthoform is the best, but for internal use the soluble acid salt. Further observation is needed in regard to its action on the mucous membranes of the mouth, nose, and nasopharynx. As it is non-poisonous it can be applied to large ulcerating surfaces. Internally  $\frac{1}{2}$  to 19 of the hydrochlorate has been given several times in the day. Orthoform is stable, nonhygroscopic, can be added to other remedies.—*Brit. Med. Journal*, Oct. 2, 1897.

### The Behaviour of Human Milk to Diphtheria Toxin.

Schmid and Pelanz (reprint from *Wien. klin. Wochenschrift*, 1896, No. 42) have investigated the question whether human milk contains any substances antagonistic to the diphtheria poison such as are found in the blood of newborn children. Ehrlich and Wassemann had previously shown that the milk of immunised animals was antitoxic to the extent of 1-15th to 1-20th of power of their blood serum. The authors compared the results obtained from human milk with those resulting from the use of the serum of the placental blood, as obtained through the cord immediately after birth. These were mixed in varying amounts with lethal doses of diphtheria toxin in order to ascertain the quantity required to prevent the fatal issue. The results of six series of experiments showed that protective substances pass from the blood into the milk of puerperal women, but that the quantity therein present was much less than in the placental (that is, maternal) blood and that a correspondingly larger amount was required for immunisation. It is well known that infants at the breast seldom contract diphtheria, and it is interesting to ascertain how much of this immu-

nity is congenital and how much derived from the mother's milk. Ehrlich showed that the offspring of a mother immune against abrin retained its resisting power for six to eight weeks, while antitoxic bodies introduced into the organism were got rid of at longest within thirty-four days. The prolongation of the immunity must therefore be attributed to the milk, and the interesting deduction follows that the antitoxic substances taken in with the milk must pass unchanged from the alimentary canal of the infant into its blood. It must hence be concluded that in newborn children, and especially in the offspring of a mother whose blood contains diphtheria antitoxins, there is provided a store of these antitoxins accumulated during uterine life, and that this is replenished from the mother's milk so as to render them less susceptible or even immune to diphtheria. It need hardly be pointed out that this gives a breast-fed child a great advantage over those brought up by artificial means.—*Brit. Med. Journal*, Oct. 9, 1897.

### Water Analysis and Epidemics.

The Municipality of Calcutta are making serious efforts to improve the sanitation of the City of Palaces by keeping the streets and drains clean, and seeing that private as well as public lodgings are also kept clean. They should look to the potable water, the importance of which will be observed from the following from the *Lancet* of 9th October 1897:

The value of both a chemical and bacteriological analysis of water with a view to pronouncing it fit or unfit for drinking purposes has often been impugned, and this fact has not a little to do with the refusal of some authorities to have the water-supply frequently and systematically examined. This may or may not have been the case at Maidstone, where, unfortunately, one of the severest epidemics of typhoid fever on record has broken out not very long after it was decided to reduce the number of analyses which had hitherto been made. We do not for a moment affirm that had the analyses been made more often the outbreak would have been avoided. Still, the periodic and frequent examination of a water-supply is, in our opinion, a step that should never be neglected, for although neither bacteriology nor chemistry can be depended upon to determine with certainty whether a water is actually injurious to health, yet both alike may afford an indication of risk and impurity. We could quote several instances where a water-supply has been traced with certainty as the source of typhoid fever, yet on chemical analysis the water showed a high standard of purity. And bacteriological examination is just as likely to be mis-leading as a chemical examination. Indeed, as a rule, where bacteriological examination succeeds in tracing impurity, so also does chemical analysis. The only safe and satisfactory way to control the purity of a water-supply is to have periodic bacteriological and chemical examinations made, and, above all, especially if the results are negative, to make from time to time a thorough investigation of the source of supply and to ascertain every conceivable possibility of contamination, whether occasional or enduring. It must not be forgotten that accidental pollution may happen which

would be sufficient to produce an epidemic of disease, and that the moment of pollution may occur sometime between the taking of the samples. In short, it is imperative that not only should a water-supply be examined frequently, both chemically and bacteriologically, but that every step should be taken, especially where the supply is dependent upon wells, to examine minutely the source of the water and ascertain whether there is any possibility of its contamination.

It is for the Health Officer and the Engineer of Calcutta to watch and see how the water-supply of the town can be kept from contamination.

### The Effect of Smoking upon Health.

The Russian correspondent of the *Lancet* (9th October 1897) gives the following summary of an article published in the September number of the *Journal of the Russian National Health Society* :—

Dr. Mendelssohn publishes a number of observations which he made a few years ago upon the effect of smoking on the health of students, and the statistics he gives are not without interest. In 1890 a circular form was sent to every student of the Army Medical Academy in St. Petersburg and in the Technological Institute containing a large number of questions which the students were asked to answer, and 1071 replies were received. Among the medical students 54·66 were found to be habitual smokers, and among the technological students only 47·18. Juvenile smoking must be common in Russia if we are to accept the table of returns of the age at which these students began to smoke. Two were returned as beginning the habit at the age of six years, 3 at the age of nine years, 11 at the age of ten years, 5 at the age of eleven years, 27 at the age of twelve years, and so on, the maximum being reached at the age of seventeen years. The average number of cigarettes smoked daily by a medical student was 19·64 and by a technological student 22·88 (Russian cigarettes are more than half paper mouthpiece and therefore much smaller than English cigarettes). But the most interesting figures are those which deal with the effect of smoking on the health. Of the smokers 16·09 per cent. were found to have some affection of the respiratory, while only 10·69 per cent. of the non-smokers were so affected. In regard to diseases of the alimentary tract the figures were respectively 11·88 and 9·92 per cent., and of both tracts combined 8·77 and 3·22 per cent. In every case the smokers gave the higher per centage. Turning to the effect of the age at which the habit was begun it was found that those who had acquired the habit before the age of sixteen years gave higher percentages of illness (19·05, 13·09, and 13·69 in the above three groups) than those who began at or after that age (14·77, 11·34, and 6·6 respectively). Another table shows the deleterious effect of inhaling the smoke when smoking; inhalers gave per centages of illness of 16·14, 12·2, and 9·25 respectively, as compared with 15·38, 7·69, and 2·56 among those who did not inhale. Some other tables complete the article, which closes with some *pia desiderata*, more particularly as to the

need of instructing the youth of the day in the harmfulness of smoking.

The writer notices as a significant fact that the habit of smoking is rather decreasing in Russia, especially among the upper classes. That smoking is to a certain extent a harmful habit especially in the young, is now acknowledged by a large portion of medical men of Europe and of the United States of America. It is now time that this fact should be made known widely in India, more particularly to save her students and the younger men generally from the baneful effects of smoking.

### Wireless Telegraphy.

Prof. G. Minchin, of Cooper's Hill College, has not only questioned the originality of Signor Marconi in the invention of Wireless Telegraphy, but has claimed that originality for himself, as will be seen from the following letter which has appeared in the *Electrical Review*, for Oct. 15, and a similar letter in the *Electrician* :

If we except Hertz's original production of sparks in a circuit which is under the influence of an oscillator, the first instrument (so far as I am aware) for signalling without wires was my impulsion cell, which I discovered about the end of 1887 or the beginning of 1888, and of which an account is given in the *Philosophical Magazine* for March, 1891. My impulsion cells were on view in the Physical Laboratory of Cooper's Hill College, and were examined by many people. Now, one of the first things that I discovered about these cells was, that by attaching a wire to one of their poles and allowing the Hertz oscillations to strike this wire, the cells were easily responsive to the oscillations. I habitually had such a wire connected at one extremity with one pole of an impulsion cell, while the other extremity was free, and could be moved about to various positions in space, so as to collect the oscillations and render the cell sensitive to them. Sometimes this wire was little more than a foot long; sometimes it was 20 feet long; and there are, no doubt, some of those who worked with me in the laboratory who remember the employment of such a collecting wire—as I have, for sake of distinctness, called it, although it has probably a double function.

This wire is explicitly mentioned in my paper in the *Phil. Mag.* (p. 223) for March, 1891, in the following words:—"Impulsion cells differ much from each other in the readiness with which they undergo the change from the one state to the opposite; but the most obstinate can be thrown from the insensitive into the sensitive state by leading a wire connected with either pole into the vicinity of a Hertz or a Voss machine."

Shortly afterwards, apparently, M. Branly discovered the tube of filings, which is the receiver adopted by Signor Marconi; and the electro-magnetic *modus operandi* in this tube and in my cells seems to me to be the same.

To come to fundamentals, a few moments reflection will show a certain element of the ludicrous in Signor Marconi's claim to the sole use of a collecting wire, even supposing that he was the first



to discover its use, which he certainly was not. For is not every receiver of the Hertz impulses connected *by a wire* with some indicating machine, such as an electrometer or a galvanometer? Every such wire is a collecting wire. Moreover, suppose that I place at the top of the house an impulsion cell on a Branly tube, and connect it by wires with galvanometer (or other instrument) at the bottom of the house, could Signor Marconi, or anyone else, prevent me from doing so? Can he prescribe to me the length or the shape which I must give this connecting wire? Certainly not. And yet such a wire necessarily plays the part of a collector.

Signor Marconi, in an interview recently published in the *Daily Chronicle*, refers to a paper of mine read before the Physical Society in May, 1894, on this subject. It is just possible that he may have seen the earlier paper without reading it with sufficient attention. Certainly if he had done so he would have learned the part played in these phenomena by a wire attached to one pole of the receiver.

GEORGE M. MINCHIN.

### **The Plague in Bombay from a French Point of View.**

Dr. Bonneau, medical officer of the first class in the French Colonial Service, who was deputed by the Governor of the French Possessions in India to make a study of the outbreak of plague at Bombay, has embodied the fruits of his mission in a lucid and instructive article which appears in the *Archives de Médecine Navale et Coloniale* for September. With regard to the genesis of the epidemic this writer comes to no positive conclusion. "It is certain," he says, "that the first cases occurred in a densely populated native quarter where the merchandise of the entire world is heaped up in the greatest profusion awaiting distribution either by means of exportation or else internally to meet the industrial and commercial requirements of the country itself. The produce of China is there stored side by side with the cereals from Northern India. Was the disease imported from Hong-Kong, or did it travel with the wheat from the sub-Himalayan districts? This is a question that will probably remain unanswered." Certain observers have found an argument in favour of the Himalayan origin of the pestilence in the enormous mortality that took place among the rats infesting the go-downs where the wheat was lying, but Dr. Bonneau very effectively disposes of this theory by remarking that if more rats died there than elsewhere it was simply because they existed in greater number. The plague at first advanced slowly and insidiously, taking a long time to, as it were, put forth its roots, and Dr. Bonneau is quite satisfied that if energetic repressive measures had been adopted soon enough it could easily have been stamped out. Unfortunately, nothing at all was done by the municipal authorities until it was too late to summarily extinguish the innumerable foci of infection which had had time to establish themselves over the entire city. Mandevi, the quarter first contaminated, "consists of an agglomeration of unclean houses that are overflowing with filthy inhabitants. Not one single rule of hygiene is observed in this slum, where

man and beast live together pell-mell amidst semi-darkness and respiring a heavy vitiated atmosphere. The sewers are not in working order, and on either side of the street close to the houses there are open drains about two feet in depth which, owing to defective flushing are lined with an evil smelling deposit made up of vegetable and animal detritus." And yet, in spite of this shocking condition of things, the pestilence did not rage more severely in Mandevi than elsewhere, and when at last repressive measures were adopted it had almost completely disappeared from that quarter. The exodus that took place from Bombay was enormous. At the commencement of the present year it was calculated that upwards of 300,000 people had left the city, spreading themselves all over the peninsula. Old writers asserted that the plague never occurred south of a certain latitude, and as a matter of fact it has never crossed the equator; but great atmospheric heat cannot, as was alleged, be the sole cause of the exemption, because at the very time the epidemic was most severe in Northern India the temperature there was quite as high as it was in the south, which remained immune. Dr. Yersin's method of treatment is the only one of which Dr. Bonneau speaks approvingly. It is true that his results in Bombay were not so favourable as they had been in Hong-Kong, but this was owing to the manner in which the serum was prepared. In China it was obtained after the intravenous injection of living cultures, whereas in India the latter were dead and were injected subcutaneously. Yersin's serum is likewise, he considers, valuable as a prophylactic, but Dr. Bonneau was not at all impressed with the preventive quality of M. Haffkine's lymph, which he characterises as not only crude but dangerous. M. Haffkine's method, moreover, does not in his opinion possess the merit of novelty, having already been essayed by Ferran in Spain and Pfeiffer in Germany.—*Lancet*, Oct. 16.

### **A Note on some of the Requirements for a Sanitary Milk Supply.**

It is now generally recognized that the milk supply problem is one of the most pressing in American sanitation, and I am frequently asked to give an opinion as to the merits of this or that remedial measure. I have therefore thought it worth while to lay down very briefly, but I hope clearly, the fundamental principles which must be carefully kept in mind in seeking to introduce sanitary reforms into this important industry.

The fundamental, indispensable and all-controlling requirement of a sanitary milk supply is that milk, when consumed, shall be as nearly normal as possible. Normal milk is milk as it flows from the mammary gland of a normal animal, and a normal animal is obviously one that is healthy and well fed. From such an animal under normal conditions the milk supply of its young passes almost instantaneously, and without exposure to dust and air, from the milk ducts of the mother to the stomach of the suckling. Such milk is absolutely fresh, warm and free from dirt. It is not only undecomposed, but nearly or quite free from the germs (*bacteria*) of decomposition.

Ordinary city milk, on the contrary, is neither fresh, warm, nor free

from dirt, and if not already far on the road toward decomposition, is always richly seeded with bacteria. It is not always derived from healthy or well-fed animals, and is seldom drawn under clean and sanitary conditions, so that even at the outset it may be, and often is, very far from normal. It is also too often transported over long distances, so that it still further loses its original freshness, and it is frequently manipulated by unclean, and sometimes by diseased, workmen. By the time it reaches the consumer, therefore, it is not only no longer normal milk, but usually stale, dirty, more or less decomposed, and sometimes also diseased.

Some of the steps to be taken in securing a more sanitary supply are easily deduced from the foregoing facts, and are as follows :

1. Milch cows should be healthy, well fed, well kept and well cared for.

2. Milk should be derived from such cows only, and with all possible precautions in regard to sanitation and cleanness. Cows as sources of food should be tended as carefully as or more carefully than horses used only for burden or pleasure. The operation of milking should be looked after with special care. Above all, the hands of the milker should be carefully washed just before he begins to milk, his own personal cleanliness being even more important than that of the cow.

3. When drawn, milk should be immediately filtered and chilled, as means of retarding decomposition, and all articles with which it comes in contact, such as filters, pails, cans, etc., should be scrupulously clean.

4. The milk thus prepared should be delivered, if possible, at once.

5. If it is impossible to deliver the milk immediately, it will be impossible to deliver normal milk, and such milk cannot, in fact generally be obtained in cities. The best that can be done, probably, is to deliver as speedily as possible two kinds of milk, viz.:

- (a) The milk thus far described, kept as nearly normal as the conditions will allow.

- (b) The same milk carefully pasteurized either (and preferably) on the farm where it is produced or at some central point accessible from a number of farms, or, if this be impracticable, at some good distributing point in or near the city to be served.

The former (a), which may be called "chilled milk" or "raw milk" or "ordinary milk," will be preferred by some. The latter (b), which may be called "pasteurized milk" or "sanitary milk," will be preferred by many as being certainly free from the germs of infectious disease.

There can be no doubt that any individual or company which honestly strives to displace the present highly objectionable milk supply of American cities by a supply such as has been here described deserves, and will secure, the support and the confidence of the more intelligent portion of the community.—*Scientific American Supplement*, Sept. 25, 1897.

## CLINICAL RECORD.

## Indian.

*A Case of Measles with Pneumonia.*

UNDER THE CARE OF DR. M. L. SIRCAR.

Reported by Dr. Prasanna Lal Kumar, L.M.S.

A Hindu lad, aged four years and three months, had fever for 10 or 12 days. As a brother and cousin of his living in the same house with him had measles at that time, he was not given any medicine in anticipation that he also might get measles. After 10 or 12 days the fever grew stronger and the measles not having appeared as was expected, he was given 1 gr. of *Quin. sulph.* during intermission. The temperature rose up to 104° F. on that night. The next day (29th October) he was again given *Quin. sulph.* in 1 gr. doses once in the afternoon and again at about 8 p.m. During the night the temperature remained normal, but it commenced to rise from the morning of the 30th instant. At 5 p.m. the temp. was 105.5. On auscultation moist crepitations were heard at the base of the right lung, but there was no dulness present. Some cooings also could be heard here and there over both the lungs. He was given the following mixture:

Ammon. Carb. gr. i.  
 Liq. Ammon. Citratis ʒss  
 Spt. ather. nitrosi mʒ.  
 Vin. Ipecac. mʒiiss.  
 Syr. Simp. mʒv.  
 Aqua ad ʒii.

Mix for one dose, a dose to be taken every three hours.

Three doses of this mixture were given.

31st October:—6-30 a.m. The temp. came down to 101.5. At about 9 a.m. Dr. Sircar was called in. The temp. was then 99; no stool for two days. He prescribed *Nux. v.* 30, four globules of which were given at once. At 10 a.m. had one hard and scanty stool. 1-30 p.m. temp. 101.4. 2-30 p.m. had another hard scanty stool. Temp. at 7-30 p.m. 103.2, at 8-30 p.m. 104.2, at 10 p.m. 104.

1st November: 6-30 a.m. temp. 102. Measles appeared all over the body. Condition of the lungs was the same as yesterday. No medicine was given. Temp. at 1 p.m. 104, at 4-30 p.m. 103.8. Pulse, 140, respiration 75, per minute. The dilator nasi muscles were acting violently during respiration. The face was quite flushed. Dr. Sircar still gave no medicine. Temp. at 8 p.m. 103.8, at 10 p.m. same. During the night the child was delirious and had one scanty soft stool.

2nd November. 6-30 a.m. temp. 102, at 8-30 a.m. 101.4. Moist crepitations could be heard all over the back of the right lung and also over the front below the mammary line downwards. It was distinctly duller than the left lung. Moist crepitations could also be heard over the back of the left lung down the lower angle of the scapula. The face was cyanosed. Respiration short and abdominal in character, 75 per minute; pulse 150. 2 globules of *Phos.* 6x were

given. 11 a.m. temp. 102, resp. 70; 2-30 p.m. temp. 102.2, resp. 50, pulse 144. Appears to be somewhat lively. 4 p.m. temp. 103.2, resp. 60. At 7 p.m. temp. 102.2, at 8-30 p.m. 102.4, at 10 p.m. 101.8. 2 globules of *Phos*. 6x.

3rd Nov. 1 a.m. temp. 101.2, resp. 40. 6-30 a.m. temp. 100. 2 globules of *Phos*. 6x. 9 a.m. temp. 100. No crepitation could be heard over the left lung. The right lung on percussion more resonant and the number of crepitations fewer. 10 a.m. temp. 100.4, resp. 40. 1 p.m. temp. 99.4. Appears much better; could sit up and play. Temp. at 4-30 p.m. 99.2, at 8 p.m. temp. 99.

4th November, 6-30 a.m. temp. 97. The right lung almost perfectly clear, no more crepitations. Sibilant and sonorous ronchi could be heard here and there over both the lungs. The cough was dry and distressing. No med.

5th Nov. 6-30 a.m. temp. 98. Cough dry. 2 globules of *Ipec*. 6x. 7 p.m. temp. 98. 2 globules were again given.

6th Nov. The cough easier. Since the first inst. the patient has had no stool, to-day he passed a copious healthy stool.

The patient steadily improved and is now (Nov. 20) all right.

[*Remarks*: There was evidently some peculiarity in the constitution of the child which prevented the eruption of the measles from coming out. The *quinine* given had probably the effect of heightening that peculiarity. The *mix vomica* antidoted this effect of quinine, and thus facilitated the breaking out of the eruption. The action of *Phosphorus* in controlling the pneumonia, which had threatened to be serious, was evident and remarkable.—M. L. S.]

### Foreign.

*Cases illustrative of Tuberculosis of the Abdomen in Children.\**

By JOHN ROBERSON DAY, M.D., Lond.,

Physician to the Children's Department, London Homœopathic Hospital.

INTESTINAL AND MESENTERIC FORMS

CASE I. *Tubes Mesenterica*.

Wm. C., age 5½.

Past personal history: Father has diabetes. Mother malignant disease of the peritoneum. Eight other healthy children.

History of present illness: Never been very strong, and his father, a diabetic, always hungry, constantly fed him on improper food; this, his mother thinks, was the first cause of the disease. The bowels have been loose and offensive for two or three years.

Present condition on admission, February 29th, 1896: Has a large pendulous belly; much flatulent distension; no masses are to be felt; no free fluid in the abdomen; has pain at the umbilicus when the bowels act; heart and lungs normal. *Ars. iod.* 3x gr ji. ter. This was changed to *ars. iod.* 3 on March 16th, and on March 29 *ars. iod.* 3x was resumed. The notes state a steady improvement. The motions became less frequent and lost their offensive odour, and the abdomen became less tense.

\* The cases here given, and a fifth (not given) which ended fatally, formed the basis of an excellent paper which was read by the author before the British Homœopathic Congress, Bristol, Sept. 16, 1897.—*Editor*.

April 2. Sea water sponging was ordered, and on April 27 *sulph.* 30. *iii.* ter given. May 6. Left the hospital.

In addition to this treatment, while in the hospital I had the bowels irrigated with a weak solution of boroglyceride, and I am sure this was attended with great benefit; it washed away the foetid motions, and thus lessened the danger of auto-infection, which is a real danger in many diseases where the bowels are not acting normally.

#### CASE II. *Tabes Mesenterica.*

Family history: Mother, a Canadian, delicate constitution. Father, a Belgian, a strong powerful man; one other boy strong. Pauline de G. R., age seven, was a fine baby at birth and was nursed at the breast till four to five months, after which she was bottle fed. At 10 months she had influenza and was constantly sick. With teething diarrhoea began, and at 12 months had constant offensive diarrhoea six times a day, no appetite, and gradually got worse, with great belly, and could count her bones. She continued under allopathic treatment till two years old, when she was taken to Brussels and saw a homœopathic physician there (Dr. Gailliard). He, on their return, referred the parents to Dr. Hughes, who kindly sent the patient to me. When I first saw her she was pale, thin, and very delicate-looking, with very scanty thin hair; the skin was dry and had an earthy tint. The veins marked the forehead. She had a very large abdomen, was very listless, with poor appetite and constant offensive diarrhoea. The tongue was always mapped and very pale. I at once most carefully dieted her, but it was difficult to get her to take milk. Raw meat juice and Valentine's juice were given in gradually increasing doses. The principal medicines were *iodine* 3, *ars. iod.* 3 and 3x, *calc. iod.* 3x, *sulph. iod.* 3, *chin. ars.* 3x. She is now an absolutely different being. Her hair has grown thick, colour has come to her cheeks, the tongue is no longer mapped, there is no longer any diarrhoea and the abdomen is now normal in size. She is lively and skips about and walks well. At one time in her illness I used massage and inunctions of cod-liver oil, with the greatest benefit; at that time she suffered from great flabbiness of the muscles and relaxation of the ligaments. This was causing flat foot and its consequence—knock knee. By carefully regulated tip-toe exercises this condition was cured and the result of treatment in her case most satisfactory.

I should say the treatment extended over a period of some years, but in so serious a disease considerable time, care, and attention are necessary to effect a complete cure, and this is the reason why the children of the poor who suffer from this disease very often go from bad to worse, because it is impossible to give them the long-continued care and good feeding which are necessary to bring about a cure.

#### PERITONEAL FORMS.

#### CASE III.—*Ascites.*

Rosa S., age 15 months.

Admitted to the Hospital December 31st, 1896.

Family history: Father age 24. Mother age 24. Both healthy. The mother had chorea three times before marriage, and a maternal

aunt died of phthisis. This patient is an only child, has been bottle-fed since birth with cow's milk and barley water. Has five teeth.

History of the present illness: Since three months has been getting big in the abdomen. Screams at night and draws the legs up.

Present condition (December 31st, 1896): There is great distension of the abdomen, the circumference at the umbilicus measures 21 inches. The abdomen is dull on percussion, and the skin tense and shiny and gives a marked thrill. The umbilicus is everted and projecting, tense and shiny. The bowels act regularly two to three times a day. Owing to the screaming of the child a complete examination was not possible. *Apis* 3x ter.

January 4th, 1897. Patient seen again and admitted to Barton Ward. The rest and treatment (*apis* 3x) quickly reduced the fluid, and the child was discharged to attend as an out patient.

Jan. 28th. The inguinal glands were observed enlarged and *calc. iod.* 3 given ter die, also bovine.

On February 4th, there was great improvement, but the proximal phalanx of the right little finger became enlarged, with strumous dactylitis. *Ars. iod.* 3 g.ij. ter. in die and *ol. morrh.*

On February 11th *calc. c.* 6 was given.

March 11th: A purulent nasal discharge appeared with ulceration of the upper lip. *Merc. sol.* 3x ter in die. The general condition much improved and *ars. i.* 3 was again given and is still being taken.

This, gentlemen, is a case in illustration of the ascitic form cured by treatment.

#### CASE IV.

This case is of exceptional interest. The patient first came with the ascitic form, which was cured. Then she developed tubercular adenitis and the inguinal glands on both sides suppurated. Finally she came with white swelling of a knee and elbow.

#### Tubercular Peritonitis.

Lucy L., aged 12, admitted to London Homœopathic Hospital September 20, 1895.

Family history: Good.

Past personal history: Eighteen months ago in London Homœopathic Hospital with same complaint. At that time there was ascites, but no hard masses in abdomen. *Ars. iod.* 3 and 3x rapidly cured her.

History of present illness: Ailing for last six months; getting thinner, paler; loss of appetite; bowels costive.

On admission; Weight, 6 st. 11 lbs. Temp. 101.4° in evening; fairly well nourished; sallow complexion; abdomen generally slightly distended; on palpation a doughy feeling; in left iliac fossa is a well defined hard fixed mass, size of hen's egg, tender to touch, slightly resonant on percussion; in right iliac fossa is a fulness but no distinct swelling. *Calc. c.* 3.

Sept. 25. Since admission the mass above mentioned has become smaller. Occasionally a gripping pain in the abdomen, not worse at any particular time. Patient lies on the back, as a rule, with the legs drawn up. Temp. rises to 101.8° at night, profuse perspirations every morning. Tongue cleaner. Bowels only open with enemata.

Oct. 3. Temp. has risen to  $102^{\circ}$  for the last five nights; night sweats. There is an obscure fluctuating feeling over the mass in the left iliac fossa. Within the last three days a distinct swelling has appeared in the right iliac region, and there has been pain in that region.

Oct. 5. Two or three enlarged glands in the posterior triangle of the neck slightly tender, but no acute inflammation.

Oct. 14. Temp. at night  $100-101^{\circ}$ ; normal or subnormal in the morning.

On Oct. 29 she was discharged.

The treatment had been *calc. carb.* 3 for a short time, but principally and nearly the whole time *iod. ars.* 3x.

Subsequently these glandular masses in the groins suppurated and discharged, and have left deep scars. Then she came under treatment for tubercular swelling of one knee and an elbow. The tubercular disease having left the abdomen manifested itself elsewhere. She continued as an out-patient for a long time and is now quite well.

The treatment was principally with the *iodide of arsenic*.

Iodide of arsenic 3 and 3x may be called the sheet anchor of this disease, and of tubercular lesions generally; then iodine 3. or combined with lime or sulph., as *calc. iod.* 3 or *sulph. iod.* 3x; *apis* 3x helps absorption of ascites; *hepar s.* 3 for the caseating glands; *sulph.* 3 or 30 as an intercurrent remedy. *Calc. carb.* 6 must not be forgotten, also *calc. phosph.* 3x. The special indications for the administration of these I need not remind you of.

It is not sufficient simply to give these medicines, or rather I should say you will make far greater headway by a general survey of the peculiarities of your case, and treat accordingly. I am sure intestinal irrigation is of great use, where the diarrhoea is frequent and offensive. It is best given by means of a hydrostatic douche.

The question of diet is all important, and milk, boiled or peptonised, or humanised, stands first in importance. Raw meat sandwiches, or one of the many meat juices may be given, but see that the diarrhoea is not increased by so doing.

Cod-liver oil is highly beneficial, or some preparation which contains it. Inunctions of warm olive oil, or cocoa butter, are of great value in improving nutrition.

Massage must never be forgotten, and this may be preceded by the sea-bath, of the value of which I have the highest opinion.—*Monthly Homœopathic Review*, Oct. 1897.



**THERAPEUTICS OF CONSTIPATION, DIARRHŒA,  
DYSENTERY, AND CHOLERA.  
154. MAGNESIA MURIATICA.**

**Constipation :**

1. St. hard like sheep's dung. St. discharged with difficulty, in small pieces like sheep's dung.
2. Two sts. harder than usual, and the first time more straining.
3. Was obliged to hurry to st., which was crumbly and as if burnt, with sticking pain in rectum, followed by burning in anus.
4. Hard, knotty st., enveloped with thick mucus.
5. Hard st., encircled with streaks of blood.
6. St. for many days consists first of hard lumps, sometime after soft and thin.
7. St., at first scanty and of large size, then again call to a st. which is soft ; then she feels sick, first with lassitude in the abd., and thence in the whole body ; she has often to lie down.
8. Four sts. within an hour, the first solid, the others diarrhœic, with aching of anus and cutting pain in abd., continuing till next st.
9. No st. for several days.
10. Urging to st. the whole day, but only flatus is passed.

**Diarrhœa :**

1. Soft st., with colic in the morning, after great anxiety and vertigo.
2. Several *greenish*, pappy, diarrhœic sts.
3. Several diarrhœic sts. daily, with discharge of scanty, thin, liquid, *brown* faeces.
4. With the sensation as if flatus would come, frequently soft faeces are passed.
5. Soft st. with colic, in the morning, preceded by great anxiety and vertigo.
6. Liquid st., which squirted out forcibly, then tenesmus and burning in anus, and constant urging, followed by scanty, thin st.
7. Soft, *yellow* st., preceded by colic.
8. With soft sts. pieces of tape-worm sometimes with yellow mucus are discharged.
9. Soft st., followed by tenesmus and burning in anus.
10. Soft st., a second time, with shivering all over body, and then burning in anus and sensitiveness in rectum.

**Dysentery :**

1. Frequent urging to st., but only a little thin and slippery st. is passed.
2. Mucus and blood passed, with tenesmus in anus, during D.-like sts.

**Before St. :**

1. Urging.
2. Colic,
3. Sensation of flatus.
4. Great anxiety and vertigo.

**During St. :**

1. Burning and excoriation of anus.
2. Colic.
3. Straining.
4. Painfulness of varices.
5. Protrusion of rectum.
6. Shivering all over body.

**After St. :**

1. Tenesmus, burning and excoriation of anus.
2. Nausea and accumulation of water.
3. Loud rumbling and clucking in abd. at every breath.
4. Severe pain in abd. at every movement.
5. Renewed urging in rectum, as if more was coming, but only mucus was discharged.
6. Colic, and itching in anus (after a natural st.).

**Rectum and Anus :**

1. Burning deep in rectum.
2. Stitches in rectum, extending to abd. Stitches in perinæum.
3. Urging to st., but only flatus passed, which burnt like fire. Frequent and great urging, with pain in abd, all day. Renewed urging after a st.

**General Symptoms:**

1. Very much excited the day before appearance of menses. Ill-humored, morose, fretful, with internal restlessness, and disinclination for work ; but cheerful after a happy event.
2. Vertigo, if she hangs head a little. Dizziness, even to falling forward, on rising in morning, disappearing after moving about.
3. Feeling of numbness and pressure in forehead. Heaviness of occiput, dizzy feeling, with danger of falling. Great painfulness of head externally to touch and on stooping.
4. Inflammation of eyes, with swelling and redness of lids and nightly agglutination, and discharge of purulent mucus during day ; a green halo around light in evening.
5. Ulcerated nostrils. Violent coryza, at one time dry, at another fluent, with dulness of head and complete loss of taste and smell.
6. Great yellowness of face, especially of white of eye. Violent paralytic-like pain in bones of face.
7. Lips cracked. White pimples on inside of upper lip. Violent tooth-ache preventing sleep. Upper incisors seem too long and very sensitive. Great dryness of mouth, with feeling as if mouth and tongue covered with mucus. Sour slimy taste of various kinds of food. Bitter taste, especially in back part of palate. Great heat in mouth.
8. Dryness and rawness of throat. Hawking of tenacious mucus, several mornings in succession.
9. Ravenous hunger, followed by nausea. Excessive thirst, day and night. Eructations and risings of food, of white froth. Bitter acid eructations. Much acidity in stom. after dinner. Acid risings of food, especially of milk. Violent hiccough, during and after dinner. Frequent nausea, with accumulation of water in mouth.

10. Pressure in stom. extending up into chest and throat, as from flatulence. Stitches transversely across epigastric region.
11. Sharp drawing in hepatic region. Distension of abd. after dinner. Cutting in abd. nearly all day. Tearing in abd. forenoon and after evening. Colic about 4 P.M. Colic and itching in anus after a natural st. Sticking pain in left groin, with hardness and distension of abd.
12. Frequent urging to urinate with scanty emission. A feeling as though he was unable to retain urine. Involuntary micturition while walking, yet on attempting to urinate while standing nothing passed. While urinating he did not feel the urine in the urethra. Emission of urine only by exertion of abdominal muscles; urine passed only drop by drop, and some always seemed to remain behind. Urine pale yellow; or almost opaque, depositing a cloud.
13. After violent erections, dull pain in testes, spermatic cords, and small of back. Frequent emissions. Leucorrhœa, disappearing after st.; with cramp in abd.; especially on moving the body; watery; thick. Discharge of blood five days before menses.
14. Hoarseness. Cough with expectoration of grey salty mucus; of tenacious mucus of fatty taste; or easy expectoration of salty, sweet taste. Stitches in heart, taking away breath. Palpitation, while sitting or rising from a seat, disappearing after moving about; with pulsation in all arteries.
15. Violent burning and constant itching of back. Paralytic feeling, or contractive cramp-like pain, in small of back.
16. Trembling of hands and feet. Pain in left shoulder as if dislocated. Burning and itching of forearm. A node on right wrist. Long bones of lower extremities painful while walking. Cramp in calves.
17. Heaviness of different parts, thighs, knees, calves, hips, &c. Could tolerate no fresh air for three days and nights.
18. Formication of whole body at night. Excessive itching of genitals as far as anus, profuse perspiration of scrotum, and an emission.
19. Restless sleep, on account of a sensation of heaviness in abd. Sleep unrefreshing, weary in morning.
20. Perspiration and frequent thirst after midnight.

## Glennings from Contemporary Literature.

### VITALITY.

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#### VII.—THE INTERSTITIAL CIRCULATION IN ALL LIVING THINGS—ITS DEPENDENCE ON VITALITY.

INTIMATELY associated with the matter of every living particle is water. Indeed, water is a constant and necessary constituent of all life. Its amount is considerable in proportion to the solids wherever vital phenomena are active. Living matter without water has probably never existed, and anything approaching desiccation results in death. Water, then, must be regarded as an absolutely necessary condition of life at all times, but the smallest amount that may be present without life ceasing has not been determined. As far as I have been able to ascertain, no evidence yet obtained supports the conclusion that life in the complete absence of moisture is possible, and it seems almost certain that water must have preceded the existence of any form of life.

Life involves the very free movement not only of material particles but of the constituent atoms of the living matter, many of which are being continually rearranged—placed in new positions with respect to one another. There is no such thing as a living particle having the same composition in every part, or remaining of the same composition from moment to moment. An isolated living atom of any substance in nature is not conceivable.

Whether the atoms are caused to move in the water in which they are suspended or are in some sort of chemical or other kind of combination with the elements of the water cannot be decided at present. The atomic movements and rearrangements here referred to are *vital movements*, but are, of course, invisible and not to be demonstrated; but the general movements so characteristic of living matter are well known, and can be studied without difficulty in the amoeba, in the colourless blood corpuscles, in pus and mucus corpuscles and in many other particles of living matter or bioplasm; and these movements of living matter differ in essentials from every kind of movement known to take place in matter in any other state or condition, and are vital—that is, peculiar to, and characteristic of, life—temporary living state of matter.

Not only is water necessary to living matter, but the fluid which bathes the living matter and the substance immediately around it must be continually changed. It is probable that neither the particles of living matter nor the fluid around it are ever in a state of rest—stagnation of fluid like the cessation of movement in living matter being immediately followed by death.

In all living forms there is evidence of the free and constant movement of

interstitial fluid, and in organisms of complex structure consisting of tissues as well as of living matter the fluid is not only present in the living matter itself, but pervades every part of all the moist tissues, circulating freely among the structural elements, and keeping these in a state of health and activity. In some cases there are actual canals which are bounded by a thin layer of the tissue and thus separated from one another; in others the fluid pervades every part of the tissue occupying minute interstices, which vary in dimension and arrangement in different tissues, and in the same tissue at different ages. The free movement of fluid is, in fact, always taking place in living forms, whether there are true vessels arranged as a network of tubes in every part of the organism, or propelled by a special organ into large vessels directly connected with it, and so into smaller ones resulting from the division and sub-division of the trunk and its branches, and thus distributed to all parts. The free circulation in the living matter and in the interstices of the tissues is universal, and is one of the phenomena belonging to life itself. It is an "interstitial circulation," always independent of any propelling organ or power, or capillary attraction, adhesion or any motor action known in connexion with the non-living.

This unceasing movement and interchange of fluid which takes place in the minute channels and interspaces between the microscopic elements of the tissues as well as in every kind of living matter is a necessity of life, and has been universally present in all things that have lived, including the most minute speck of independent living matter and the most gigantic and highly complex organisms. The interstitial circulation goes on even in the so-called non-vascular tissues which may be situated some distance from any vascular supply—from any blood- or lymph-carrying vessels. Even in the hardest textures, such as bone, and teeth, and shell, the circulation of interstitial fluid continues as long as any living particles, however minute, which have taken part in the formation of the tissue, remain. When tissue becomes hard, and dry, and inactive, there is, of course, no longer circulation of fluid in its interstices, and all changes indicative of life have ceased; and though still connected with and, in fact, forming part of a living organism, the tissue is no more living than if it had long been completely severed and preserved for many years in a museum. Through the agency of the interstitial circulation all nutrient matters after passing through the formed material are brought into close proximity with the particles of bioplasm that are to appropriate them, which living particles are concerned in the development, formation, and action of the respective tissues or organs. By the interstitial circulation the deterioration of tissue may be prevented, and damage which it may have sustained repaired. Abnormal formations and deposits may be removed through the circulation of the interstitial fluid, and may be taken up by it, changed, and dissolved. Although entirely independent of the organs of circulation and of any propelling power, mechanism, or apparatus, some of the interstitial fluid with its dissolved constituents is continually passing through the capillary walls where capillaries exist and mixing with the blood, some of its com-

ponents taking part in nutrition while others are altogether removed from the organism by the action of various excreting organs.

The interstitial circulation of man and the higher animals is active long before the organs of circulation or the fluid to be propelled through the vessels exist, and before any vestige of the complex arrangement of nerve centres and fibres which regulate and control the blood circulation can be discerned. In fact, the ordinary circulating organs may be said to be subordinate and to minister to the interstitial circulation, and would have no meaning in the absence of the latter, which begins at the earliest period of embryonic life and before any structures or organs have appeared. The interstitial circulation never ceases as long as life lasts, and continues for a time after the heart has ceased to beat and the blood to circulate. In various pathological changes detrimental to some of the tissues and organs of the body of *vital importance* the interstitial circulation may still be carried on, but in its absence, development, nutrition, formation, repair, action, and the removal of the products of disintegration and decay would be impossible.

That "death" occurs when the heart stops beating and the blood ceases to circulate is certainly true with regard to the high and complex phenomena which characterise man and the higher animals, but some vital actions continue to be manifested in certain organs and textures after death in the ordinary sense has taken place. The formation of hair, nail, bone, and some other structures may continue for some time after death. In short, although the bioplasm of certain parts has ceased to live, that of certain tissues and organs of the body may retain its vitality for some time, which varies according to circumstances. The bioplasm concerned in the higher operations of the brain and some other parts of the nervous system may indeed be dead, while other forms of bioplasm continue to live, and for different periods of time after "death." In man and the higher animals the forms of living matter dying first are more dependent upon the steady supply of nutrient matters and the immediate removal of the products formed during their vital changes than the bioplasm taking part in the formation and action of simpler tissues and organs, and probably "die" the instant the interstitial circulation in them ceases to be carried on at the normal rate. "We" die some time before the death of many of the living particles taking part in the formation and action of some of our tissues occurs. In certain cases, as is well known, multiplication of particles of bioplasm (leucocytes) continues for some time after death, and is associated with a rise in the temperature of the whole body, amounting occasionally to three or four degrees during several hours after the blood circulation has ceased for ever. It must, however, be borne in mind that every form of bioplasm belonging to the organism has been derived by direct descent from one minute living particle.—*Lancet*, July 31, 1897.

#### VIII.—THE INTERSTITIAL CIRCULATION IN ALL LIVING THINGS.—(contd.)

The constantly flowing currents necessary for the life and increase of the living matter, and instrumental in preserving the integrity and activity

of the formed material of the tissues and organs of living forms, originate in, and are maintained by, the particles of living matter (bioplasm) which are seen to be embedded in numerous numbers in all parts of every tissue.

To form a correct idea of the actual arrangement of the particles of the living matter, and to gain a knowledge of the important part they play in connexion with the interstitial circulation, it is necessary to examine very thin sections of the tissue; but in this inquiry it is almost impossible in the case of many very soft textures to obtain the requisite degree of thinness without seriously disturbing the natural relations of the parts. One may often get more accurate information from a careful examination of a naturally thin portion of the tissue, such as is sometimes to be found here and there as an extension from the organ or tissue under investigation. In this the tissue elements and bioplasts, with the capillaries and nerves, will be seen in their natural position, not forming more than a single layer. Such specimens may be made still thinner by careful pressure if the structure has been allowed to soak for more time in glycerine or syrup. Tissues preserved in such media can be examined with very high magnifying power, and will retain their characters for thirty years or more if carefully mounted. The details of preparation by this method were described in "How to work with the Microscope," and will also be found in papers in the Transactions of the Royal Microscopical Society many years ago. Dilute solutions of glycerine and syrup in which the fresh specimen is immersed, if kept for some time at a temperature of 100°F., will undergo considerable but very gradual concentration without the relation of the tissue elements to one another being in the slightest degree disturbed. At the same time great transparency is obtained, and very delicate structural points can be clearly demonstrated by the aid of powers magnifying 700 diameters and upwards.

Every organism, as I think I have distinctly proved, every organ, every structure forming part of a living thing, from the smallest to the most colossal forms, from the most ancient to the most recent, consists of matter in two distinct states or conditions—the one *living*, the other *formed*. All the formed materials or tissue, however firm or dense and hard and dry, was once in the state of soft, moist bioplasm, living or germinal matter. During this state the arrangements upon which its tissue-characters depend were made. The ultimate form, properties and composition of all formed material depend upon the vital changes which occurred in the bioplasm before the formed material was produced. So delicate and transparent are some even fully formed tissues that their actual arrangement can hardly be demonstrated with the highest powers. Their structural elements would collapse but for the support they receive from the fluid that lies in the spaces between the delicate fibres. In some organisms even contractile muscular tissue and nerve fibres are transparent and are supported by the fluid medium—the interstitial fluid which during life is always undergoing change—around them. Not only are nutrient matters dissolved in the in-

terstitial fluid, but certain substances formed during the action of the living matter and others from the disintegration of the formed material become mixed with nutrient matters brought within the sphere of action of the bioplasm for its nutrition. These two classes of substances, the one about to live, the other resulting from changes during life and from the disintegration of that which has lived, are very intimately mixed together in water in which both are dissolved.

The multitudes of the living particles (bioplasts) which exist in all tissues and organs of every living thing, although having very different powers and forming very different matters structurally and chemically, are in all cases the direct descendants of the original living particle of germinal matter or bioplasm which gave rise to each particular individual organism. Every one and every part of one is dependent for nutrition, growth, multiplication, and action—for life itself—upon the free supply of interstitial fluid. Sometimes the living matter is not in distinct, separate, and detached particles, but the little masses are stellate in form and the rays are continuous, so that we have a network of bioplasm extending through the tissues. At an early period of life when a sufficient number of detached or continuous particles of living matter have been produced, formed material begins to appear around and between. After a time the living matter is embedded in this formed material, which has been produced by the bioplasm, and is dependent for the preservation of its integrity upon the free and continual circulation of the interstitial fluid. The more recently developed, the younger bioplasts of a portion of tissue, are larger than the older ones and have a thinner layer of formed material around them. In multitudes of the mature lowest forms of life, and at the earliest period of individual life in all, there may be but a single mass of living matter, generally less, and sometimes very much less, than one-thousandth of an inch in diameter. In many organisms the bioplasm particles are far more minute than this, but in every one and in the formed material around each there is interstitial circulation.

In no tissues that are active are these little particles separated from one another by distances much greater than three or four times their length or diameter, and the intervening formed material is everywhere the seat of interstitial circulation. In parts of many nerve centres and in secreting and other organs where active changes are constant the particles of bioplasm are near together, and in certain structures that are constantly being formed through life even in the adult they almost touch one another. At a very early period of development in all living things, present and past, the whole organism consists of these little bioplasts or particles of living matter so close together that only a thin layer of transparent semi-fluid matter intervenes and enables us to define the several particles. In many situations the bioplasts are in the proportion of millions to a cubic inch of tissue. In the deep layers of the cuticle, on the surface of certain mucous membranes, and in the superficial layer of the cerebral convolutions just beneath the pia mater, they are very close to one another throughout life



in health; and in the last situation interstitial circulation is very active, and special arrangements exist by which a free and rapid interchange of fluid is ensured. Each of the millions upon millions of bioplasts in a moderate-sized organism possesses active vital power and takes part in the interstitial circulation as long as life lasts; each, in fact, causes and is dependent for its life upon the interstitial circulation. Each draws to itself some of the surrounding fluid, selecting and appropriating certain of its constituents, and also yields up to the fluid certain matters that are eventually removed from the organism.

Everything taken up by living matter must be in solution in water, and before substances resulting from disintegration which takes place in every part of living organisms can be removed they must also be dissolved. Water is the principal constituent of all nutrient substances, and is more than the mere vehicle for carrying the solids to their destination. It is always present in large proportion where active growth is proceeding. All active tissues and most passive ones contain it in large proportion, and in rapid changes much is required. Even tissues that seem to be dry contain some water. Fluid containing various matter is found pervading the tissues, not only passing through the interstices, but moistening every part of the anatomical elements, and, as I have before remarked, every form of bioplasm invariably contains much water. It is probable that there is not a molecule—not an atom of the matter of which a living particle is constituted—that is not free to move in all directions amongst its neighbours and coalesce with them by reason of the fluid medium which is essential, if, indeed, water is not actually combined with some of the constituents of living matter.

The proportion of water to the dissolved constituents is largest at an early period of existence when the changes in living matter are most active. The interstitial fluid is always changing in composition, always receiving certain constituents, always giving up some to be converted into living matter, and some to be changed in order that they may be eliminated altogether. In all cases, however, the proportion of water to the solids in the interstitial fluid is so considerable that it usually amounts to more than 95 per cent. A very high state of dilution seems to be universal in the case of solutions taking part in vital phenomena. The smallest quantity of water that is absolutely necessary has not been determined, but it is certain that a very moderate degree of concentration is detrimental, and may cause serious derangement both in living matter and in the formed material. Solid matters may be deposited in the substance of the tissues, the action of which may be seriously impaired, and the death of the living matter would probably occur before a considerable degree of concentration could be reached.

Wherever the atoms of living matter undergo those wonderful alterations in position and relation to one another which invariably occur preparatory to tissue formation of any kind, and to the production of substances of definite chemical composition and properties, the interstitial circulation is most active; but when tissue and definite substances have been formed,

and vital changes are carried on but slowly, locally or generally, as in old age, the interstitial fluid is small in amount, and its movement comparatively slow. In cases where part or the whole of a tissue has become hard and dry, or almost dry, as in the oldest portions of some bony tissue, in fully-formed dental enamel, and shell, in the oldest and driest parts of hair, nail, and horn, the interstitial fluid and circulation will have entirely ceased and the bioplasm will have disappeared.

In all fully-formed, mature, complex organisms the food substances and water required for growth, nutrition and action are, as we well know, introduced in one part of the body, modified in composition, and then distributed to parts at varying distances from the seat of introduction by special tubes or vessels with very thin walls, which have been formed for the purpose at an early period of development. In some cases the network of minute tubes extends through every part of the entire organism wherever living matter exists. In others the new matter passes into minute vessels soon after it has been introduced, and from these into larger ones, and at last into a single trunk, which perhaps has propelling power or is connected with a special propelling apparatus or heart. The mixed fluid at length reaches other networks of minute vessels, by the thin walls of which a part is filtered into the tissue spaces.\* This is the interstitial fluid, which is at once brought very near to the bioplasts of the adjacent tissue, by the vital action of which it is caused to be drawn through the layer of formed material around and introduced into the very substance of the living matter. In this way the bioplasm of every one of the millions of elementary parts in every portion of the body of the most complex organisms is freely and regularly supplied with the dilute solution, which contains everything required for nutrition, growth, and production of formed material and for the production of chemical substances of highly complex compositions for special purposes or for elimination.

The weak solution in water, from which the living matter obtains all the substances it requires for its life and for conversion into new living matter, is caused to flow towards the bioplasm by the vital movements of the bioplasm itself. In this way each individual particle of bioplasm of the most colossal organisms is as well supplied with what it requires if it is to live and perform its vital acts as the minute individual particle free to move, to grow, and to multiply in a medium laden with the substances upon which it lives dissolve in the proportion of water which suits it.

\* It is not perfectly correct to say "filtered," for the interstitial fluid is not merely a dilute solution of certain substances which has passed through passive membrane. The so-called nuclei (bioplasts) of the capillary walls take up a solution from the blood, select and appropriate certain suitable matters, convert these into bioplasm, a portion of which soon undergoes change, and a weak solution of the resulting substances becomes the interstitial fluid. This process, in which bioplasm takes up certain substances and converts some into new living matter, a portion of which at the same time becomes resolved into lifeless compounds, really occurs in every particle of living matter through nature, and so far no other way has been discovered in which the various structural and chemical substances characteristic of the various living organisms, their tissues and organs, can be produced in anything that lives.

It will be found that the same principle holds with regard to the vital actions of living things in every department of nature—every particle of living matter being dependent for its life upon an interstitial circulation which is established and sustained by itself, which begins with its life and ceases at its death. In every particle of living matter, then, we have a laboratory without apparatus and without any visible chemist, where analytical and synthetical operations are always being conducted in the most perfect manner. Movements and work proceed without any mechanical appliances and in the absence of any tangible designer, constructor, regulator, governor, or conductor. Here atoms are moved about in all directions, and may be placed above one another notwithstanding the influence of gravitation. Transformation of energy is effected in this clear, colourless, structureless substance, consisting largely of water; and movement, heat, light, electricity, and possibly other modes of motion may be evolved. Moreover, this clear, soft, structureless, living matter is capable of endless multiplication. It also differs from matter in every other known state in that it possesses powers unknown elsewhere, which have been derived from pre-existing living matter and are capable of being transmitted to particles of matter which do not yet live, and this without any loss. These wonderful vital powers, according to Lord Kelvin's most recent computation, have been passing from living to lifeless particles for about 20,000,000 years. If this be so, we may be sure that colourless, structureless, living matter, with its interstitial circulation, has existed for the same period, and that the universal vital characteristics have never ceased or been dormant for a single moment.—*Lancet* Sept. 4, 1897.

## Acknowledgments.

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VOL. XVI.] . December 1897. [NO. 12.

NECESSITY OF A SOCIETY FOR HOMŒOPATHIC  
PRACTITIONERS IN INDIA.

IN our Paper on the "State of Homœopathy in India, with especial reference to the period 1891-96," submitted to the International Homœopathic Congress, held last year in London, we said: "We have no societies or associations for the holding of meetings with a view to enable practitioners to meet and improve their knowledge by mutual exchange of experiences and ideas and by discussion. We have a Society which was established for the celebration of the anniversary of the birth-day of Hahnemann. Originally established as a Committee under the name of 'The Hahnemann's birth-day Anniversary Committee,' its name has been changed into that of the Hahnemann Society. Before 1891, the meetings though held only once a year were not regular. Since that year the meetings have been regular. Though its president, I have not been able to convert it into a society for holding meetings other than those for the celebration of the birth-day of the founder of homœopathy."

The above paper was published in this Journal for August 1896, with a supplementary paragraph in which, after pointing out the hopelessness of establishing a properly equipped Homœopathic Hospital in Calcutta, we said: "Can nothing then be



done to advance homœopathy in this country ? I think much can be done if all the *regular* practitioners of the system, small as their number may be, would but do their duty. We are no doubt doing a great deal individually ; but I am strongly convinced that *if we unite we can do a great deal more both individually and collectively*. This union can only be brought about by the establishment of a society where we can meet to exchange our ideas and opinions and discuss the various problems that may arise in connection with homœopathy and other branches of the healing art. I earnestly invite my colleagues to come forward and help in the good work, and hopefully await a favorable response."

The Journal being in arrears its August number of 1896 did not appear till December following, just a year back. Within this time no response has been received ; unless, indeed, an article entitled "Proposed Homœopathic Society in India," which appeared in the double number of the *Indian Homœopathic Review* for July, August of the current year (issued last month), be looked upon as such. The article is short and exquisitely sweet and we reproduce it entire for the information and enlightenment of our readers :

"Homœopathy gained a foot hold in India some fifty years ago : and since then it has spread here especially in Bengal so that to-day Homœopathy is recognised as a system of treatment by the people if not by the Government. Lately we have had a few honourable additions to our number. Although we have lost some of our champions, such as Rajendra Lall Datta and Behari Lall Bhaduri, yet with such men as Drs. Mohendra Lall Sircar and Leopold Salzer at the helm and with a bevy of busy practitioners we are capable of grappling with any disease and in fact are quite abreast with the times. Now to keep up this position that we have acquired for this honourable profession it has become necessary to form a society, by which we may improve its standard day by day, by holding monthly meetings when we can hear what our brethren have achieved for this great science and art and thereby promote and investigate the intricate questions yet to be solved in our vast field of work.

"If we mistake not sometime ago a proposition like this was set afoot but on account of the lack of energy and zeal of certain members it fell to the ground. This time we mean to carry it

out, cost what it will; for united we stand, divided we fall. It has become all the more necessary because of late a few upstarts have bobbed up here and there who are ruining our profession by their ignorance and people are beginning to think that if such men can become homœopaths, why then Homœopathy is nothing. Now to put a stop to this sort of nonsense and also to promulgate the cause of true homœopathy we have thought of starting a society with the leading men of our school as members and then add such men to their number as will be an honor to our profession, a feather in our cap.

"We therefore beg of our colleagues to send in suggestion &c. for the establishment of such a society and let us hope that by the time the next issue of our journal is out it will have started to do the great good work it is intended to do. This is a call to muster and the early we respond the better, for such a society will not only better our own conditions but the public will look upon us as an honourable body of men doing infinite good to the people at large."

We are thankful to the learned editor for the compliment he has paid us. We are certain we do not deserve the compliment, and it is doubtful whether we shall ever deserve it, and even if we do whether it will be safe for our school. For however pleasant it may be to be "at the helm with a bevy of busy practitioners," it is doubtful if it would be possible with such equipment to "grapple with any disease," though, considering the rapid strides with which our country is advancing in the direction of European civilization, we may be "quite abreast with the times." Our dear colleague, with youth in his favor, would be more fitted to occupy the place he has so generously offered us.

The learned editor has, it seems, become quite enamoured of his "bevy of busy practitioners," for he shows anxiety "to keep up this position that," he says, "we have acquired (of course by means of the said bevy) for this honourable profession," for which purpose he thinks "it has become necessary to form a society." The editor, with a fairness highly commendable because very rare in these days, gives credit where credit is due. "If we mistake not," says he, "sometime ago a proposition was set afoot but on account of lack of energy and zeal of certain members it fell to the ground." We do not complain if from lack of memory

he forgets the quarter from which the proposition came or the person by whom it was made or "set afoot" if you like. We ought to be thankful that he has at all alluded to the proposition as having been made before him. We should have been glad to learn who the "certain members" are and of what they are members, on account of whose culpable "lack of energy and zeal" the proposition "fell to the ground." The fact remains that he has made himself liable to the reproach he has not hesitated to cast upon others, for so far as we remember he did not condescend to respond to our invitation.

It is gratifying, however, to see that our worthy colleague has determined not to be deterred in his undertaking by "the lack of energy and zeal of certain members" whoever they may be; for, he says with the determination worthy of the cause, "this time we mean to carry it out, cost what it will." What the cost, material or moral, is likely to be of the undertaking, is more than we can divine, and this much we can assure him that however much we were prevented from carrying out our proposition by the lack of energy and zeal of our colleagues, the *cost* of doing so never entered into our calculation.

"If we mistake not," that is, if we are not misinformed, an association of homœopathic practitioners was actually formed over ten years ago, which had a precarious existence of a brief period of not more than six months. As we took no part in its proceedings, (we do not remember to have been at all asked to do so,) we cannot say what causes led to its dissolution. We are told by one who attended its two first meetings, that disunion among the members was the chief cause of that catastrophe.

Speaking for ourselves we can truly say that we are quite willing and ready to carry out our own proposition of founding a society if we meet with a hearty response from our colleagues, by which we of course mean those practitioners who are graduates of recognized institutions. By this we do not mean any slur upon those estimable and philanthropic lay gentlemen who are practising homœopathy simply to supply the deficiency of regular practitioners. All honor to them for pioneering and keeping up our cause. So far as we have been able to understand their feelings we are glad that they of all men admit that the profession can only be advanced by professional men, that is, by

men who have received a regular systematic training in all the branches of science which constitute modern medicine. The great difference between some of our colleagues and ourselves has hitherto been on this vital question. It would appear from what our learned brother has written in the article under consideration that this difference so far as he is concerned has ceased. At least so we understand his meaning when he says—"It (the establishment of a society) has become all the more necessary because of late a few upstarts have bobbed up here and there who are ruining our profession by their ignorance." Here evidently is a hit against irregular and unqualified practitioners, only he is positively in error as to the number of the "upstarts." They are not a few who "have bobbed up here and there." They are quite a legion and their number is increasing as they are being manufactured by hundreds every year. We hope that he will carry on the crusade he has so well begun against all such practitioners, without paying any regard as to who they are and whence they come. The question of definition of the regular and qualified practitioner naturally arises, but it is not difficult of solution for those who have no interest at stake or who are not pledged to maintain a foregone conclusion.

The regular, the truly qualified, practitioner must be a graduate of a medical Institution recognized by the government of the land or by some other civilised government, as capable of granting degrees and licenses to practise, by virtue of their possessing the needful modern requisites for training men in the science and art of medicine. We must say that we cannot recognise any other than such graduates as constituting the profession. If we are at all to form a society such as has been in our contemplation for a long time past, and the necessity of which our estimable colleague has at last come to admit, it must be, we need hardly add, with such men. We would not exclude from our meetings practitioners that are not duly qualified. Far from it. We know there are many among them who have a reputation of being very successful in the treatment of patients whose confidence they deservedly enjoy. We should be glad to have their experiences and their opinions, which by permission of the chair they may be given the liberty to express at our meetings. If they would like we would enrol them as associate members.

In this way we can all act harmoniously in the common cause we all have at heart, the cause of homœopathy.

We do not quite understand what the editor means when he says "we have thought of starting a society with the leading men of our school as members and *then* add such men to their number as will be an honor to our profession, a feather in our cap." If there are already such men amongst us who are an honor to the profession why not take them in as members at once, why postpone their admission till after the formation of the society? If the feather is available and within easy reach why not stick it into our cap without waiting so that, as the editor fondly believes, "the public will look upon us as an honourable body of men doing infinite good to the people at large," or at least to ourselves.

As a society already exists, the Hahnemann Society, we would ask what need is there to take pains to form a new one? and as our worthy colleague happens to be the Secretary of that society, he will not, we confidently hope, have any objection to enlarging its scope by needful organization. Let us then once more invite the co-operation of all our colleagues both in and out of Calcutta towards the fulfilment of this laudable object. As the President of the Society we would request him to communicate with us to the day and hour when a first preliminary meeting may be held for the purpose of settling details.

## THE PRESIDENTIAL ADDRESS AT THE BRITISH HOMŒOPATHIC CONGRESS HELD AT BRISTOL, SEPTEMBER 16TH.

DR. HUGHES, in seconding the vote of thanks to Dr. Proctor for his address as President of the Congress of British Homœopathic Physicians, held in Clifton, Bristol, on the 17th September last, said: "During the past 28 years he had several times proposed or seconded votes of thanks in recognition of presidential addresses, but he did not remember ever having done so with greater pleasure than in the present instance. They all knew, when they heard that Dr. Proctor was to be the president of this Congress, that they would have an address spiced freely with the Attic salt of wit, and that they would have felicitous quotations and apt epigrams upon the position of their friends the

enemy, but he thought they had hardly been prepared for so complete a picture of the present position of the homœopathic controversy as they had heard drawn on this occasion. They had all listened to it, he felt sure with the greatest pleasure and interest, and when published it would be felt to be an excellent vindication of the position they had taken up, and a satisfactory account of the progress which their views had made—though not always in their own name—in their adversaries' ranks. He hoped it would also be found to have contained a just vision of a future not far distant, and that it would be widely disseminated, that all might know how much they had to say for themselves, and how well it could be said."

This compliment coming from Dr. Hughes is high compliment indeed, and on reading the address we are glad to be able to say that it is fully deserved. We learn with pleasure that the address was remarkable not only as a literary production for its wit and wisdom but also for its striking and impressive delivery. It was a brilliant display of oratory; and we are told that "one very competent critic has since said, the address loses half its interest in type, so splendidly was it delivered."

The address must have been singularly impressive, as a thousand copies were at once bespoken at the end of the Congress; and copies, we are told, may be had of Messrs Gould and Sons, at 2*d.* per copy, or 1*s.* 6*d.* for 12 copies and 2*s.* 6*d.* for 25 copies. Every one who has the interest of homœopathy at heart should possess himself of a copy and endeavour to distribute it with a liberal hand.

The chief points dwelt upon in the address have been summarized at its conclusion as follows: "In the *first* place, that homœopathy as a principle is as old as allopathy, and equally belongs to the science and art of medicine; *secondly*, that Hahnemann did for homœopathy what Darwin did for organic evolution; he established it on an unshaken basis, he introduced law and order into it, and by his own enormous industry and self-denial rendered it workable for the treatment of a wide range of disease; and *thirdly*, that homœopathy, besides being largely represented by avowed believers in it, has accomplished a great revolution in general medicine, both in its theory and practice, and its mission is not yet complete."

Each of these points were elaborately treated in the address. With regard to the first point the critically disposed may not be inclined to accept its strict accuracy. That "homœopathy as a principle is as old as allopathy," that it "had been a possession of medicine during its *whole* history," appears to us doubtful, and this doubt is confirmed by what Dr. Proctor himself admits as the great difficulty of homœopathy. "It were greatly to be desired" he says, "that homœopathy appealed to common sense in the same way that allopathy does (using the term in the simple sense of applying the principle of contraries). The principle of opposites is seen in action in the world around and about us. It is seen in the laws of mechanics and the general behaviour of the physical forces, in the balancing of powers by equal and opposing energies. It is so obvious and so universal in the realm of physics as to suggest that the same applies to the vital force, and accordingly the profession has, on purely rational lines, constructed its system of treatment on the principle of simple antagonism."

Such being the case,—allopathy appealing so much to common sense, and homœopathy being apparently so much at variance with it,—we cannot see how the latter principle could have been as old as the former, and how could it have been "a possession of medicine during its *whole* history," much less do we see how could it possibly have been "in the ascendant" in earlier times. It is true that it is as old as the time of Hippocrates, but this time was not the beginning of medicine, and it has to be shown that the principle of similars can be traced to the earliest times of medicine. The probability is that the principle of opposites, being so much in correspondence with common sense and therefore apparently so natural, must have been acted upon from the very beginning, and that the principle of similars, being so much in opposition to common sense, must have been stumbled upon by the purest accident, and therefore must have come much later in the possession of our art than the other. The application of the principle of similars must have been of the very crudest description, and both the difficulty and the danger of such application must have seriously stood in the way even of its partial acceptance.

For the object which Dr. Proctor has in view, namely, to

convict the old school of ignorance of the history of medicine, it does not appear to us at all necessary to claim for homœopathy an antiquity equal to that of allopathy. It is enough to show that it is as old as Hippocrates, that is, at least, 400 B.C. The profession has no excuse in rejecting homœopathy without refuting it, when it can be shown that it has been "handed down to us by a number of writers long before Hahnemann," from an antiquity as far as recorded history can take us back, and therefore having the right of demanding an examination.

Dr. Proctor, "for the sake of placing his (Hahnemann's) work in its true relation to the historical development of the idea, has drawn a happy comparison between Hahnemann and Darwin. "The similarity," says he, "that struck me most forcibly lay in the fact that the mission of Darwin was precisely analogous to that of Hahnemann. The idea of evolution was as old as that of homœopathy, but both were vague and tentative, hardly worth calling more than a speculation, until these two men came, and then by the range of their knowledge, the power of their intellectual grasp, their industry, and their penetration, the two allied biological sciences were left at their death in a different state from that in which they were found." "And we may say," he goes on, "besides the similarity, there is the absolute identity of purpose accomplished by each in his own sphere. They both belong to the century, both lived a life of happy domestic relationships, and both attained to length of years. They were both, perhaps, the most learned and accomplished in their special sciences; they both stood high, very high, in the estimation of their colleagues; both were indefatigable observers and voluminous writers; both made use of their immense reading and observation for the establishment of a biological law; Darwin by his proofs of the law of natural selection, and Hahnemann by his systematic proving of medicines on the healthy and the use of the small dose. Both met with the most violent opposition, both succeeded in founding a school, and both threw into the scientific arena a doctrine of such immense importance and suggestiveness, as to have given rise to an entire literature on their respective subjects."

A parallel may be drawn, as we did draw, in our presidential address at the 133rd Anniversary of the birth of Hahnemann,



held in Calcutta on the 10th April 1888, between Hahnemann and one even greater than Darwin, no less a discoverer than the great Newton himself. The parallel cannot be extended to the minute particulars pointed out by Dr. Proctor, but it is very striking as far as the real merits of the establishment of the principles,—the principle of gravitation by Newton, and the principle of similars by Hahnemann,—are concerned. We take advantage of an author's privilege to reproduce what we said so far back as 1888, in order to show that Hahnemann's merit does not pale even before that of Newton.

"I have now, gentlemen, as I promised in the beginning, given you a rapid sketch of the cardinal doctrines of the system of medicine which the genius of Hahnemann built from the very foundations. I have shown you the gradual rise of ideas in his mind respecting each of them till their culmination and convergence into absolutely a New Science. You have seen that in regard to two of the doctrines, namely, the single remedy and the small dose, he was unmistakably and unquestionably original, no body ever having dreamed of them before him; and that in regard to two others, namely, the proving of drugs and the law of similars, notwithstanding that there were, as he himself has pointed out, foreshadowings of them before him, these foreshadowings were really so shadowy and faint, the help he received from his predecessors was so infinitesimal and so imperfect, and the development he gave them was so enormous, so systematic and so comprehensive that his originality about these points was certainly not less, if not greater, than that of any discoverer in other fields of knowledge before and since his time, not even excepting the great Newton himself.

"Referring to the discovery of Gravitation by Newton Dr. Whewell says that 'in this, as in other considerable advances in real science, the complete disclosure of the new truths by the discoverer, was preceded by movements and glimpses, by trials, seekings, and guesses on the part of others.' Now these glimpses and guesses were, in the case of gravitation, as pointed out by Dr. Whewell himself, more than mere glimpses and guesses; they were very nearly the discovery itself. For, with regard to the proposition, 'that the different planets are attracted to the sun by a force which is inversely as the square of the distance,'

says Dr. Whewell, 'Newton had so far been anticipated, that several persons had discovered it to be true, or nearly true; \* \* Huyghens' theorems would have proved this, if they had been so applied; Wren knew it; Hooke not only knew it, but claimed a prior knowledge to Newton; and Halley had satisfied himself that it was at least nearly true, before he visited Newton.' Again with regard to the moon's gravity to the earth, 'Horrox, as early as 1635, appears to have entertained the true view on the subject,' having, in his *Defence of the Keplerian Astronomy*, gone so far as to say, 'that the emanation of the earth carries a projected stone along with the motion of the earth, just in the same way as it carries the moon in her orbit; and that this force is greater on the stone than on the moon, because the distance is less.' And lastly, regarding the mutual attraction of all the celestial bodies, both Borelli and Hooke had put forth the conjecture, and the latter, in his *Attempt to prove the Motion of the Earth*, has these remarkable words: 'it followed from his doctrine, that not only the sun and moon act upon the course and motion of the earth, but that Mercury, Venus, Mars, Jupiter, and Saturn, have also, by their attractive power, a considerable influence upon the motion of the earth, and the earth in like manner powerfully affects the motions of these bodies.'

"What then constituted the real merit of Newton in the discovery of gravitation? Why is the discovery claimed as his, and still looked upon as 'indisputably the greatest scientific discovery ever made?' Newton's merit consisted in giving precision and distinctness to ideas which wanted those qualities and without which they could not be accepted as enunciations of natural laws; in proving and verifying what others had conjectured to be probably or very nearly true; in going far beyond his predecessors and contemporaries in colligating the facts thus established into a generalisation the widest and the boldest yet conceived, namely, that all particles of matter attract one another by one common law of action, the law of the inverse square of their distances; and in calculating the consequences of this generalisation and showing them to agree with actual phenomena. When we remember that all this was done with all the rigour and exactitude of mathematics by the aid of an analysis of which he was the inventor and which he alone could handle, and

when we remember 'that no one, with his methods, has yet been able to add to his labours; few have undertaken to illustrate what he has written, and no great number have understood it throughout,' we shall have no hesitation in conceding to him the sole and sublime honor of the discovery of the law of gravitation in its universal aspect.

"Gentlemen, I have purposely made this digression regarding Newton in order to render manifest to you the parallel between him and Hahnemann, and to show you that it was in no language of exaggeration that I claimed for the latter, originality of discovery in a field of research much more complicated than astronomy,—originality of at least equal magnitude to that justly conceded to the former by universal suffrage. And when it is remembered that the field in which Hahnemann had to work was infinitely less prepared than that in which Newton had to work, that he had to lay the foundation as well as to raise the superstructure; when it is remembered that the difficulties which Hahnemann had to encounter were of a sorely personal character in the shape of furious opposition from his fellow-workers in the same field, whereas not only nothing of the kind happened to Newton but on the contrary he met with sympathy and support from many; and when it is remembered that the methods of investigation in the case of Hahnemann entailed actual suffering from voluntary poisonings, which was not the case with Newton;—when all this is remembered, greater merit than that of mere originality will be accorded to Hahnemann as having combined in himself the character of an intrepid reformer and of an adventurous discoverer, and having no other object than 'the glory of the Creator and the relief of man's estate' "

We have not hesitated to quote this long passage because the parallel drawn in it between Hahnemann and Newton bears such a close resemblance to, and is therefore so powerfully supported by, the parallel so well drawn by Dr. Proctor between Hahnemann and Darwin. And we have no doubt, our readers will see that our master's merit is made more manifest and shines with greater lustre through this double parallel. The parallelism ceases at one and a most important point. The point is that while both Newton and Darwin lived to see their doctrines very generally accepted, "homœopathy is still the doctrine of the minority."

The reason of this is to be found as much in the ignorance of the profession as in the fact that while neither gravitation nor evolution struck at the root of any vested interests, homœopathy did so in a most uncompromising manner. The principles of homœopathy are so fundamentally and diametrically opposed to those of traditional medicine that it would have been a marvel if orthodoxy had yielded readily to the arguments of its opponent.

But it would have been equally a marvel if orthodoxy had remained unaffected by the steady progress which homœopathy has been making in spite of the determined opposition and in many instances of the unrelenting persecution which it has been its lot to meet with since its very birth. Dr. Proctor takes the actual conversion of orthodox medical men whose number all over the world is already very great and the conversion of the intelligent portion of the community whose number is much greater, as the least part of its services. Its greatest achievement has been, according to him, the "great revolution it has accomplished in general medicine, both in its theory and practice." "We have brought round the professional world," says he, "very largely to our stand point." And this, he shows, has been done in all the points which characterise our system, namely, the recognition of the vital force, as a force *sui generis*, having its own laws of action independent of those of physics or chemistry, the recognition of disease as merely a disturbance of the vital activities, and the recognition of the necessity of the small dose, and, as a corollary, of the single medicine.

As regards the two first points Dr. Proctor has contented himself with quoting a passage from Dr. Leech's article, in the *Practitioner* for June, on "The Progress of Therapeutics in the Victorian Period," in which all that he (Dr. Leech) says is that diseases are no longer "looked upon as entities to be directly attacked and overcome by remedies," but "as evidences of changed functions of various organs, and our efforts are directed to find agents which will restore to these organs their proper functions or remove the cause which induces the change." What Dr. Leech has here said, may be said on any theory of life, materialistic or vitalistic, at least he does not betray any leaning towards the latter which Hahnemann adopted in the last edition of his *Organon*, and which is beginning to be held by some thoughtful biologists of the present day. Dr. Proctor might have got better and stronger support for his position from Dr. Lionel Beale, than from the doubtful authority of Dr. Leech.

With reference to the really distinguishing features of the new school, the small dose and the single medicine, "it is obvious to every one," as Dr. Proctor has well observed, "that the entire

aspect of pharmacy has changed. Homœopathic medicines are being imitated so well that we can use many of the pilules and tabloids ourselves. They are in many instances virtually homœopathic, being made up of drop doses of tincture and of tenths and hundredths of a grain of triturations. What conceivable use can there be for drop doses of aconite and belladonna except on homœopathic lines?" So that even what used to excite so much merriment in orthodox physicians and used to furnish them with what they considered such unanswerable argument against the new heresy, have at last come to be adopted. Indeed the old school materia medica now-a-days are in many instances but unblushing appropriations without acknowledgment of the treasures of the homœopathic materia medica, even to the extent of their form and size. And the great wonder is that these are palmed off as original discoveries by men who have not the courage to avow the source upon which they have drawn, and in which act of broad day robbery they are encouraged and abetted 'by renegades from our ranks who have not scrupled, for the sake of filthy lucre, to betray their master.

Now if the small doses of the single medicine can only be useful on homœopathic lines, how could orthodox physicians, who use very nearly our small doses and often only of one medicine, escape avowal of the *similia similibus* law? "Here," says Dr. Proctor, "the opposite camp is in a state of confusion. Whilst nominally denying the homœopathic law, there are efforts continually being made to explain the homœopathic action of medicines." Here again we meet with unacknowledged appropriations of even the arguments advanced by members of our school in explanation of the law. Thus Dr. Lauder Brunton, who was a friend of the late Dr. Sharp, has adopted the latter's theory of the opposite action of the small and the large dose, and Dr. John Harley has adopted the wave interference theory first put forward by our Mr. Buist Picken, and what more is needed to ignore the law which has been so well explained? This may be so, but "this looks," Dr. Proctor shrewdly observer, "as if our nominal opponents had a boding sense that at any moment the veil that hides the operation of the small dose may be lifted, and homœopathy be seen to stand forth a self-evident scientific truth." And then of course the old school will take the whole credit of having discovered it.

Dr. Proctor himself is not satisfied with the above explanations. He thinks it "doubtful whether any parallel to vital processes will be found in the world of physics. Life" he says very truly, "is so unique a thing, with its powers of growth and reproduction, its reaction to stimuli, its capability of exhaustion and recuperation, and its association with feeling and thought, that to use an

Irishism, 'none but itself can be its parallel.' Consequently, analogies with mechanics, with light, and sound, &c., will be but imperfect, not running on all fours, and if an explanation of the homœopathic cure comes about it will, I think, be strictly 'on vitalistic lines.' He accordingly puts forth an explanation of his own, but we have no space to discuss it just at present. We will take it up in a future number. Meantime we offer him our sincere congratulations on his brilliant address, which so impressed his audience, and the perusal of which has given us so much pleasure and instruction.

### ALLEGED CASES OF PLAGUE AT CHANDRAHATTY; OR A PLAGUE SCARE.

The following paragraph appeared in the *Englishman* of the 29th ultimo:

"Have all our precautions been set at naught, and is the plague actually at our gates? We deprecate to the utmost the spirit of alarm, but a report has reached us which would almost justify the darkest apprehensions. A correspondent informs us that in the very heart of the Hughli District in the village of Chandrahatty near Punduah, two cases have occurred which have all the appearance of plague. Very high fever with swollen glands in the neck are the prominent symptoms. In three days the patients became unconscious, and there is now said to be no hope of their recovery. And another case similar to these is reported. We call the attention of Government to this statement, which is sufficiently circumstantial to warrant an immediate investigation."

The Hon'ble Mr. H. H. Risley, Secretary to the Government of Bengal, Financial Department, and President of the Plague Commission, lost no time in directing inquiry into the matter, and the following Report of Dr. R. L. Dutt, Civil Surgeon of Hughli, will show what the nature of the so-called cases of plague was, which had so upset our contemporary that while "deprecating to the utmost the spirit of alarm," he did not hesitate to sound its tocsin without waiting for the result of an inquiry. We are afraid he has not yet got over the plague fever of Dr. Simpson.

The consequences to the trade of Calcutta might have been serious if the paragraph in question had led Renter to send telegraphic messages to Europe about occurrence of Plague in the vicinity of the City. We should have expected that the leading paper of the Metropolis, conducted generally with ability and judgment, had been more careful in sifting the rumour before allowing it to spread under editorial sanction. It would have

been better and easier and more time-saving to have drawn the attention of Government to it direct, instead of, as was done, through its columns.

No. S. and V. 208, Gated Chinsurah, the 30th November 1897.

From—SURGN.-LIEUT.-COL. R. L. DUTT, M.D., Civil Surgeon of Hooghly,

To—The Secretary to the Government of Bengal, Financial Department.

In compliance with your telegram which reached me at 1-10 P.M. yesterday, I started for Chandrahatty, about three miles distant from Pandua in this district, and reached the village at 4 P.M. I made a careful local enquiry with the help of the local police and the village elders, and have the honour to submit the following report.

2. Chandrahatty is a purely agricultural village inhabited chiefly by Hindu cultivators of the *Satgope* caste. Muhammadans form less than one fourth of its population. It is a low jungly place, with the usual manure heaps seen in villages in Bengal. There are a few cases of malarious fever of ordinary intermittent type in the village.

3. On careful enquiry I learnt that one *Gokul*, a trader in milk, who used to go to Calcutta daily to sell milk, died, after an illness of 13 or 14 days, about three weeks ago. The history of the case is obscure. He appears to have got malarious fever of a remittent type with symptoms of cold, and died of some complications. This case occurred in the eastern portion of the village. He never went to Bombay or any infected place, neither had he anything to do with people coming therefrom.

One Rakhal Das Ghose gave me information that his uncle, Jogeshwar Ghose, cultivator, and aged about 50 years, died on the 12th day of *Agrahan*, or three days before my inspection. The history of the second case is intelligible. The patient was affected with severe cold or catarrh with subsequent occurrence of fever, cough, expectoration and difficulty of breathing. He died after 12 days of illness. The history of the case indicates that the patient suffered from catarrh of the air-passages, which culminated in broncho-pneumonia—the immediate cause of his death. This case occurred in the western portion of the village, having had no connection with the first case.

The third case occurred in a widow aged 50 years, Khetter Moyee, of *Satgope* caste. She was just convalescent after three days' illness. I saw her and found her to have suffered from an attack of tonsillitis. Her pulse was 80, with normal temperature, and the tonsils excoriated by the application of lunar caustic, and the whole neck blackened by repeated application of the same. She has no swollen glands in the neck, arm-pits or groins, except the tonsils. This is a simple case of tonsillitis which a quack compounder, Abhoy Churn Ghose, of village Rudrashandra, diagnosed as a case of *golafula* or plague. The treatment adopted was cauterization of the entire neck and the throat. It appears that this quack spread the tale of plague having broken out in this village. He treated cases of common cold as cases of plague by cauterization.

4. There is no history of importation of any plague-stricken patient to the village or its neighbourhood. I telegraphed to you as soon as I came back to the Pandua Railway Station, stating that there was no plague in the village of Chandrahatty.

## EDITOR'S NOTES.

**Died in a fit of Laughter.**

While Dan Leno was singing one of his patter songs in Birmingham a married woman, who sat in the gallery, laughed so immoderately that she went into an apoplectic fit and died before a doctor could be summoned.—*Englishman*, Dec. 4 (*Mail News*, Nov. 19).

**Prenatal Infection.**

EDWARD P. DAVIS (*Arch. Pediat.*, xiv, 641, September, 1897) describes cases of hemorrhage from various mucous surfaces and of green stools in the newborn infant, and has specially investigated their bacteriological manifestations. These cases he ascribes to prenatal infection. In the feces were found the bacillus coli communis, the micrococcus pyogenes aureus, and the micrococcus pyogenes albus. The treatment adopted was copious intestinal irrigation, with normal saline solution, and this was successful in mild cases. A coccus was obtained from the blood of infants with the grave form, which, when injected into the bodies of pregnant guinea-pigs, was found in the young pigs. It most closely resembled the micrococcus tetragenus versatilis associated with yellow fever. The condition is a toxæmia of apparently intestinal origin; but whether the germ gains entrance to the fetus by the placenta or by the umbilical vessels during birth is uncertain.—*Brit. Med. Jour.*, Nov. 6, 1897.

**Mental Sensitiveness.**

**Belladonna**—Very excitable mood, extremely sensitive, easily moved to tears.

**Capsicum**—Peevish, irritable, angry, easily offended by an harmless word.

**Cocculus**—Very sensitive mood, everything worries and offends.

**Colchicum**—External impressions, such as bright light, strong odors (*Nux Vom.*), contact, misdeeds of others make him quite beside himself.

**Colocynth**—Extremely irritable, impatient, easily offended, every word offends him.

**Hepar Sulphur**—Over-sensitiveness and irritability, quick, hasty speech.

**Ignatia**—Sensitiveness, delicate conscientiousness.

**Iodium**—Mind very sensitive during digesting, felt like crying, irritability and sensitiveness, excessive excitability.

**Nux Vomica**—Over-sensitiveness, every harmless word offends, every little noise frightens, anxious and beside themselves.

**Opium**—Fretful, irritable, nervous, easily frightened.

**Platinum**—Peevish, irritable, fretful mood, very sensitive to the least word or action however innocent.

**Pulsatilla**—Sensitiveness to harsh words, mild, yielding, tearful disposition.

**Sepia**—Is easily offended and inclined to be vehement.

**Silica**—Compunctions of conscience about trifles.

**Staphisagria**—Very sensitive to least impression, the least word that seems wrong offends her.



Teucrium—Very great sensitiveness and irritability.—*Medical Century*, Oct. 1, 1897.

### Addison's Disease in Childhood.

(A. VARIOT (*Journ. de Clin. et de Thérap. Infant.*, July 29<sup>th</sup>, 1897) has met with 3 cases of Addison's disease occurring at an unusually early age. In one of these reported some time ago incontinence of urine was a marked symptom. The 2 new cases now put on record were those of a boy aged 14½ years, and a girl aged 15. In the former case the father had died of pulmonary tuberculosis, and the boy showed an intensity of the bronzed pigmentation which was quite extraordinary. The colour was most marked on the dorsal surface of the hands, but it was also evident on the neck and back, on the face, on the lips, and over the elbows and knees. In the case of the girl the most noteworthy fact was the occurrence of very grave gastro-intestinal symptoms (vomiting and diarrhœa) with fever. There was also delirium, and it seemed as if meningitis was imminent. Both cases were treated with extract of suprarenal capsule, and in the latter instance the gastro-intestinal disturbance ceased, and it was thought that the Addisonian pigmentation became less intense. Variot thinks that the period of puberty, during which there is a nutritional superactivity, predisposes to lesions of the suprarenal glands, and especially to those of a tuberculous nature.—*Brit. Med. Jour.*, Nov. 6, 1897.

### Treatment of Incontinence of Urine in Children.

A useful paper on this subject, by Dr. J. A. Coutts, is published in *Treatment* of Sept. 9<sup>th</sup>, 1897. He states that the vast majority of cases of nocturnal incontinence can be relieved by waking the child at stated intervals to micturate. Restriction of liquids during the latter hours of the day will help. But in a few cases this seemed to keep up the disorder, the vesical mucous membrane being evidently intolerant of the highly concentrated urine so produced. In obstinate cases if the urine is of high specific gravity and acidity then the child should be encouraged to drink freely towards the end of the day. A signal success may be thus achieved. Of drugs belladonna still is foremost, but it often fails. This sometimes arises from the common method of giving several doses during the day. A much more efficient one is to give one single large dose in the evening, which can be gradually increased every four or five days, and when the incontinence ceases gradually diminished. If belladonna fails recourse must be had to other drugs. Of these he places most reliance on lycopodium, the merits of which have been as yet but little recognised. He gives twenty drops of the tincture three times a day to a small child, and increases the dose gradually to a drachm. Possibly more could be given. He knows of no poisonous properties attaching to the drug, but admits he may be at fault in that respect. In ordinary cases bromide of potassium has proved of less service to him than to some others. But there are cases in which it may prove of the utmost benefit—those in which micturition occurs when waking is imminent or takes place. He has seen but little benefit from strychnine, but in

combination with iron in cases accompanied with anemia and lassitude it has been of great service. When drugs fail there remain other methods. In many instances micturition does not occur while the child lies on his side, but immediately when he turns on his back. Here a lobbin strapped over the lower spine is effectual. Circumcision is to be recommended only where there is undue tightness of the prepuce.—*Lancet*, Oct. 30, 1897.

### The Death of the Duchess of Teck.

In the Duchess of Teck, whose lamented death occurred last Wednesday morning, the nation has lost not only a most popular member of our Royal Family, but also a lady whose warm heart, untiring kindness, and practical sympathy with distress has been placed in evidence in a thousand ways. Her intimate association with numerous philanthropic projects for the good of the suffering and the weak, especially those which had for their object the relief of women and children in distress, had endeared her to the heart of the nation to a remarkable extent, so that her appearance on public occasions was always the signal for a reception the enthusiasm of which left no doubt as to the real affection in which she was held by all. It will be remembered that in April last Her Royal Highness underwent an operation for strangulated umbilical hernia at the hands of Mr. H. W. Allingham. The operation was completely successful, and every one was glad to see the Duchess's stout handsome face at the Jubilee festivities, when she was apparently enjoying her usual health. Latterly, however, she had been troubled both by a feeble heart and glycosuria—both pathological conditions being of some years' standing—and on more than one occasion when indefatigably fulfilling her part in some public function she has appeared to those around her to have been undertaking more than her strength warranted. The Duchess was taken ill on Monday morning last, when she was seen by Dr. Wadd, of Richmond. On Tuesday she manifested slight symptoms of obstruction, and in the course of the day was seen by Mr. Allingham in consultation with Dr. Wadd. In the evening the symptoms became suddenly severe, and Mr. Allingham was again summoned. It was then decided by Mr. Allingham, Dr. Wadd, and Mr. H. Randall Wadd that the only prospect of relief lay in an immediate operation to release a strangulation of the bowel. This was performed by Mr. Allingham, Dr. Hewitt administering the anæsthetic, and a strangulation was found in the neighbourhood of the old umbilical sac. The operation was immediately successful in that all the symptoms were relieved, and she came round from the anæsthetic, but two hours later she died from cardiac failure.—*Lancet*, Oct. 30, 1897.

### The Chemistry of the Cerebro-spinal fluid.

The composition of the cerebro-spinal fluid has been investigated by various chemists both in man and the animals, but without satisfactory results, partly perhaps because it has been examined not in healthy but in diseased conditions. The presence of a cupric-oxide reducing substance has been generally admitted, but whilst Halliburton observes, in the last edition of "*Kirkes' Physiology*," that

it contains besides salts and proteids in solution, a substance which gives Trommer's test for sugar, it is, however, he goes on to say, not sugar, but a substance of the aromatic group called pyrocatechin. Hammarsten, however, in his "Physiological Chemistry," admits a copper oxide reducing substance and describes it as an, optically inactive but "fermentable" substance, a statement that is not compatible with its being pyrocatechin. With the object of reconciling these differences Dr. E. Nawratzki, of the Dalldorf Asylum for the Insane, has undertaken an investigation upon the fluid in the lower animals and in man. He adopted the plan of making a Quincke's lumbar puncture, by which means absolutely pure liquor cerebro-spinalis can be obtained, and his first researches were made upon the calf. The mode of slaughter practised on these animals was favourable to the inquiry. Oxen, sheep, and pigs, on the other hand, could not be used because they were killed in a manner which rendered the procurement of the pure fluid difficult or impossible. From the calf he obtained from 20 to 60 c.cm. of the fluid contained in the sub-arachnoid space. The fluid was limpid and colourless, of slightly saline taste, and contained neither flocculi nor coagula. Under the microscope isolated red and white blood corpuscles were frequently visible, probably driven in by the needle. The fluid was freely alkaline and became opalescent on boiling. On the addition of a small quantity of acetic acid a finely flocculent precipitate was thrown down. On the addition of solution of soda and a trace of copper sulphate in seven out of twenty experiments a slight violet coloration was observed; in the remaining thirteen there was none. In all instances a positive result was obtained by the use of Trommer's test. No response was from Nylander's test. In the cases in which the phenyl-hydrazin test was applied the results were positive. The doubtful and conflicting statements of writers in respect to the nature of the reducing substance Dr. Nawratzki believes to be due to the small quantity of fluid at their disposal. He accordingly mixed the fluids obtained from no less than 85 calves, and thus collected more than two litres, which were acidified with acetic acid and mingled with a considerable quantity of alcohol. The mixture was then divided into four portions. These were severally tested for a copper-reducing substance and pyrocatechin, and the results of his experiments were that in opposition to Hoppe Seyler and Ransom he finds that in health a substance is present which in all its properties agrees with grape sugar. The percentage amount is smaller than that in blood, varying in different classes of the animal kingdom from one-tenth part to two-tenth parts per cent., whilst pyrocatechin is entirely absent.—*Lancet*, Nov. 6, '97.

### Indiscriminate Orificial Surgery.

The orificial philosophy, as presented to the medical world by Dr. E. H. Pratt, has placed him in the front rank of advanced thinkers and surgeons of America. The good results accomplished by this surgical procedure has made him a benefactor to numberless nervous wrecks, who are again sailing upon a tranquil sea, after having for years been on the way and in the dry-dock of despair.

The present age is one of fakes and fads. It therefore behooves one to exercise great judgment, with the devotion of much time, to the analysis of each subject and case under consideration, holding fast only to that which is rational and productive of good.

Acknowledging great benefit derived in the judicious application of official surgery, I am, however, firmly convinced this great and modern surgical maneuver has been submitted to numerous annual classes of physicians of the various schools of therapeutics too much as a panacea for all hopeless chronics, without administering the valuable and important advice, to wit: Use critical discrimination in cases coming to you. After careful analysis, refrain from lacerating cervix, hood of clitoris, prepuce, rectum, or urethra when it can be seen there is no indication for surgical interference. Too frequently the only pathological condition discovered by the officialist is that located in the trousers pocket, redundancy of bank account of patient, etc., accompanied by neither atrophy nor hypertrophy of rectal mucosa or subjacent tissue.

There has been too much phlebotomy, fakirism, etc., too frequent circumcision of male and female, American operations galore, with concomitant incontinence of feces; and it leads me to confess, without exaggeration or uttering an untruth, and in this confession will quote Holy Writ, "He that is without sin among you, let him first cast a stone." I have in the past, when my enthusiasm was at its height, slit rectal mucosa, where neither pockets nor papillæ could be discovered; circumcised both sexes when neither hood of clitoris nor prepuce was adherent, constricted, nor could I discover them a source of irritation; recognizing all conditions as above stated, before operation was made, but for work done and service rendered collected a plethoric fee because of my exposure to the contagium of official surgery.

I consider the American operation seldom called for, inasmuch as thorough dilatation, abdominal massage, careful observance of table habits, moderate exercise, frequent bathing, and galvanism will, in many cases, cure hemorrhoids, overcome redundancy, and leave the sphincters and mucosa intact. My experience has demonstrated, in seven-tenths of hemorrhoidal cases, that the slit operation and dilatation are preferable to either the American or Whitehead, until they must be used as a *dernier ressort*. The removal of pockets and papillæ has been the prevailing craze with every male and female officialist, many times punching the rectal mucosa where no pockets existed, continuing to punch and snip to make the patient realize the charge for service was just and legitimate.

It has been my experience that dilatation, in a large number of cases, is all required, with frequent repetition, until reaction and re-establishment of the capillary circulation takes place, when a general mental and physical improvement is discovered, and Nature once more aided by regular habits and giving up of dissipation and riotous living indulged in, brings crimson hue to sunken cheeks and a buoyancy indicative of perfect health.

I can call to mind a number of prominent official surgeons of the Northwest who have become so wedded, and a part of what can be described as official faking, that no other curative means is considered

until the unsophisticated, credulous chronic is rimmed up to a finish ; when this fails, but not until it does, is good horse-sense and homeopathic therapeutics applied. Before the magnificent work of our good and manly Pratt shall become the property of the charlatan and we, his pupils and admirers, become surrounded by the heavy dew and fog of quackery, let him in future attach to each of his pupils a Westinghouse air-brake, and teach them to exercise calm deliberation in its use, drawing the line of demarcation, that we may first recognize the necessity for operating, and thereby not mutilate the rectum and genitals of every patient coming to us anticipating skillful treatment rendered by one who is a true surgeon, not a fakir.—Dr. W. H. Cain, of Minneapolis, in *Journal of Official Surgery*, Sep. 1897.

### Patent Medicines.

PARADOXICAL as it may seem, with the advance of knowledge and of general education among all classes, there has been a steady increase in the use of patent medicines, until at the present time, nostrum taking has become almost a mania with a certain class of our population. The truth of this statement must be apparent to any one who will take the trouble to scan the daily papers and note the number of pages devoted to the advertising of these preparations. It has been estimated that more than 30,000,000 dollars are spent yearly for patent medicines. If that be the case during the past few years we may imagine what the amount would be in flush times. Thus it would appear that the people of the present generation are far more credulous and desirous of being humbugged than were the people of the last ; that education is unable to overcome the instinctive superstition inborn from generation after generation of ignorance, but this is not wholly true because the education has not been carried on in the right direction. In every human breast there exists a feeling of respect and reverence for anything that is not understood. Nearly every one is possessed with a secret desire to transgress the laws of nature without suffering the inevitable punishment. Both of these characteristics of human nature are catered to by the average patent medicine ; first, because its composition is unknown and mysterious, and second, because its glowing advertisement promises a short and easy road to health, which man has never found but hopes that each fresh trial will disclose. These fascinating preparations are, as a rule, fraudulent in every way. They claim to be specifics which they are not and which they cannot be, for no such thing as a specific can exist as long as disease appears in such varied, individualized forms. Simple remedies and well-known combinations are shrouded in mystery and sold as valuable new discoveries. Ignorant people suffering from some slight illness are frightened into believing that they are in a dangerous condition and led to buy a lot of stuff that may not be at all suited to their case. Many nostrums contain poisonous elements which are absolutely dangerous when placed in the hands of the general public. Another evidence of fraud is found in that these compounds are made up of cheap materials, but because of the secrecy observed as to their component parts, they assume a fictitious value and are sold for exorbitant sums.

It is not at all likely that the secular press could be brought to expose concerns from which they are yearly receiving enormous sums in advertising, for if you will ask any druggist you will find that these nostrums depend not upon their proven ability to cure disease but upon the amount of advertising that their promoters are able to command, and the one that advertises the most widely is the one that sells the greatest quantity of medicine. The real attitude of the press—although few editors are as frank as the one we quote—is shown by the following protest against a legislative measure requiring all makers of patent medicines to print their formulas. “We desire here to enter our most emphatic protest against this measure. It means a loss of hundreds of thousands of dollars to the State. No reputable manufacturer would think of giving away his formulas so that any one could take advantage of the legitimate secrets of his trade—he would leave the State first. The result would be that the druggists, a large part of whose trade lies in patent medicines, would be deprived of the principal source of their income, the railroads would lose immense amounts of freight, and the newspapers would be almost ruined, etc., etc.” Nevertheless, there must be some papers that would willingly print scientific and reputable articles upon this subject and such articles would have a strong influence upon the laity.—*North American Journal of Homoeopathy*, October 1897.

### Mortality of Babies.

Dr. W. M. Decker read an excellent paper on the “Mortality of Babies” before the American Institute of Homoeopathy in session at Buffalo, June, 1897. It has been printed in the *North American Journal of Homoeopathy* for October. We give below the following extract from it. We have only to add that Dr. Decker defines a baby as a child from birth up to 2 years. The word infant he would restrict to children above that age.

The mortality of babies is excessive, because of ignorance and because of neglect, as the lack of a separate report on baby mortality is due to neglect. When the mothers and the profession learn wisdom, the death-rate of babies will be less than the mortality in childhood and in subsequent years, for Nature, like a guardian angel, protects babyhood from most of the children's diseases that attack life when the baby period has passed.

I verily believe, that a baby born healthy, when properly managed, stands a better chance of surviving babyhood than a child four or five years old does of surviving puberty. Yet statistics, at the present time, show, emphatically, that the contrary is true.

Babies die in the midst of a great city, like the seeds that fall from a tree; but place that tree in a natural environment, and the ground will be dotted with young shoots. Treat the babies with equal intelligence and they will live. Babies die because they are not cared for properly. Their environment and food are too artificial—their baby nature is perverted, it is not understood, and so the little lamps of life flicker and go out.

The prevention of the mortality of infants! What a great field for

humanitarian work ; what a splendid opportunity for sanitation ; what an opening for advanced therapeutics ; what a chance for reform in dietetics and all pertaining thereto ; but, if we would save our darling babies, we must not forget that "the hand that rocks the cradle is the hand that rules the world."

## DATA.

|                                     |            |                   |        |
|-------------------------------------|------------|-------------------|--------|
| 1896 ... Total Births, Yonkers..... | 1,121 ...  | Total Deaths..... | 758    |
| 1896 ... " Brooklyn.....            | 21,424 ... | " .....           | 22,501 |
| 1896 ... " New York.....            | 55,623 ... | " .....           | 41,622 |
| 1896 ... " Buffalo.....             | 8,507 ...  | " .....           | 4,452  |
| 1896 ... " Albany.....              | 1,612 ...  | " .....           | 2,103  |
| 1896 ... " State*.....              | 59,032 ... |                   |        |

Total Births in State ..... 147,319 Total Deaths in State 71,436  
Total Deaths in State, in 1895..... 121,735

| 1896             | DEATHS UNDER<br>1 YEAR. | DEATHS<br>BETWEEN<br>1 AND 2 YEARS. * | TOTAL DEATHS<br>UNDER 5 YEARS. |
|------------------|-------------------------|---------------------------------------|--------------------------------|
| New York State.  | 11,806†                 | 3,648†                                | 42,003—yr. 1895.               |
| Albany.....      | 322†                    | 99†                                   | 559                            |
| New York City... | 10,677                  | 3,211                                 | 16,807                         |
| Brooklyn.....    | 5,468                   | 1,735                                 | 9,007                          |
| Buffalo.....     | 1,073                   | 392                                   | 1,795                          |
| Yonkers.....     | 224                     | 56                                    | 337                            |
|                  | 29,570                  | 9,141                                 | 28,505                         |

Total deaths under 2 years of age, 29,570+9,141=38,711.

Total deaths between 2 and 5 years, 42,003—38,711=3,292.

For other statistics see the Sixteenth Annual Report of the State Board of Health.

\* Not including the five cities named.

† Estimated 20 % of the births, i.e., 20 % of 59,032.

## BUFFALO.

|      | Total Deaths<br>under 1 yr. | Total deaths<br>between 1 and 2 yrs. | Total deaths under<br>5 yrs. of age. | Total<br>annual deaths |
|------|-----------------------------|--------------------------------------|--------------------------------------|------------------------|
| 1890 | 1,629                       | 386                                  | 2,302                                | 5,024                  |
| 1896 | 1,073                       | 392                                  | 1,795                                | 4,452                  |
|      | 556                         |                                      | 507                                  | 572                    |

Total births, 1896=8,507

Total births, 1890=7,368

1,138

Population in 1896=350,000, mortality per 1,000, 12.73

Population in 1890 about 260,000, mortality per 1,000, 19.2+

Mortality reduced  $6\frac{1}{2}$  per 1,000, in 1896, by reducing the baby mortality.

## CLINICAL RECORD.

## Indian.

CASES By DR. BEPIN BIHARI MAITRA, M.B.

## 1. A Case of Dysentery cured by Aloes 200.

Babu Tincory Roy, Hindu, male, was attacked with dysentery on 21st July 1896. The following report was drawn up by himself:—

From 5 to 10 p.m., had forty stools; from 10 a.m. to 12 noon, two stools; from 2 to 6 p.m., 68 stools; altogether 110 sts. in 24 hours.

*Nature of the stools*:—Bloody jelly like mucus. *Before stool*:—twisting and griping pain in the hypogastrium; rumbling of flatus; sensation of a plug wedged in between the symphysis pubis and coccyx; burning heat and pricking in the intestines; great cutting, griping and excruciating pain in both right and left of the lower portion of the intestines. *During stool*:—Urging, cutting and tearing in the hypogastrium, extorting cries, violent tenesmus, much flatus, heat of the whole body, congestion to head and face; distress in the region of the liver and fainting. *After stool*:—Feeling as if still more would come; abdominal pain usually relieved; prostration, fainting and profuse clammy sweat.

*Accompaniments*:—Dissatisfied and angry with himself, when in pain; constant headache with slight nausea; tongue dry and red with much thirst; desire for juicy things; bitter taste; cutting and pinching pain in the rectum and loins. Much flatus moving about in the abdomen; loud gurgling in the abdomen as of water running out of a bottle; flatus smells very badly, frequent urging to urinate, urine generally profuse; heaviness and numbness of the thighs. This day the patient himself took *Merc. sol.* 6.

22nd July 96. 1 to 3 a.m. 8 stools; 5 to 10 a.m. 35 stools; 11 to 12 noon, nil; 1 to 6 p.m. 12 stools. Complaints are the same as on the previous date. *Merc. sol.* 6.

23rd. 1 to 4 a.m. 7 stools; 5 to 10 a.m. 31 stools; 11 a.m. to 12 noon, nil; 1 to 6 p.m. 6 stools. I saw him this day and gave *Aloes* 200, one dose only.

24th. 1 to 4 a.m. 5 stools; 5 to 10 a.m. 19 stools; 11 a.m. to 12 noon, nil; 1 to 6 p.m. 5 stools. Very little mucus in stools; griping pain and urging and other complaints greatly abated. *Placebo*.

25th. 2 to 4-30 a.m. 3 stools; 5 to 10 a.m. 16 stools; 11 a.m. to 12 noon nil; 1 to 6 p.m. 3 stools. *Placebo*.

26th. 2 to 4 a.m. one stool; 5 to 10 a.m. 3 stools; 11 a.m. to 12 noon nil; 1 to 6 p.m. 1 stool. *Placebo*.

27th. 2 to 5 a.m. nil; 5 to 10 a.m. 3 stools, with very slight griping pain. At 11 p.m. one good stool with very slight griping pain; feeling very weak before and during stool. *Placebo*.

28th. 5 a.m. one stool; feeling of the bowels not being thoroughly moved; no griping. *Placebo*. The patient had altogether 267 stools.

## 2. A Case of Intermittent Fever.

18th Feb. 1897. Hindu, female, aged 27 years. Had malarious fever, accompanied with severe dysentery, which last was cured by *Nitric* 200 followed by *Aloes* 200. After her cure from dysentery, she was well for a few days, after which began to have fever with diarrhoea.



The fever came on every other day. Yesterday was a day of fever, accession at 1 p.m. Before chill drowsiness for half an hour. Chill with thirst, severe headache relieved by pressure; muscular crampy or drawing pain, relieved by kneading, all over the body; thirst lasting till evening; pain gradually abating in the course of the night. Three loose yellow stools during heat; pain and a feeling of discomfort in the lower abdomen. Sweat none.

Burning of the palms and soles at all times; no feeling of heat in the head. Had yesterday *Calc. A.* 30 two doses with no effect. *Elaterium* 30 two doses at noon and again at 8 p.m.

19th. Fever came to-day at noon; before chill slight irritability of temper and no drowsiness. Chill for an hour; during heat no drowsiness; hammering headache; thirst; not much muscular pain. Temperature 102.4°. Sweat at 3-30 p.m. with the subsidence of fever; headache continues. *Placebo*.

20th. Fever had left at 9 p.m. with copious sweat; slept soundly at night. Had *Elaterium* 30 twice during intermission after 9 p.m. and this morning.

22nd. Had four stools yesterday, and was seen in the evening. Had *Elaterium* 30 yesterday. The max. temp. was 99° at 2 p.m. There is very slight soreness still left on the loins. *Elaterium* 30 was repeated and effected a complete cure.

### Foreign.

#### CASES ILLUSTRATIVE OF THE EFFICACY OF HIGH POTENCIES.\*

By JOHN McLACHLAN, M.D.

##### 1. A Case of Eczema and Asthma cured by Sulph. m. m.

In 1892, about three months after I came to Oxford, a young lady, eighteen years of age, consulted me for this complaint. She had suffered from the eczema since she was a baby, and about two years ago asthma was superadded to it. The eczema was worst in the hollows of the joints, legs, neck, and face, and in the right hand; and, as she was learning the violin, this latter situation caused her a great deal of annoyance. It was worst in spring and autumn. It itched a great deal, especially about the neck, and this was worse in the evening, but more so still on undressing, when she itched all over, but this passed off when once she was *warm in bed*; there was much smarting after scratching.

The asthma was most marked at or about the time of the "monthly periods"; was most troublesome about 5 a.m., when she frequently had to sit up in order to be able to breathe at all. It was very difficult to be quite sure whether or not the itching was aggravated or ameliorated by heat, but this difficulty may have been caused by her previous free use of *Arsenic* (from allopathic hands). The medicine seemed to me to be either *Arsenicum* or *Sulphur*; and I tried both of them diligently at various times and in various potencies, though never going above the 200th potency. I had come to the conclusion

\* These cases, with a third here omitted, were used as illustrations by the author to his thoughtful paper on the subject read at the Bristol meeting of the British Homœopathic Congress.—*Editor*.

that *Sulphur* was almost certainly the remedy for her, and I was therefore very much disappointed at its very partial success, for the relief never lasted very long, there being constant and very annoying recurrences. I then wrote to a friend of mine in London, stating the case to him as briefly as possible. He kindly replied as follows :

"1. Asthma before menses—*Cupr., Puls., Sulph.*

"2. Asthma during menses—*China., Cupr., Sulph.*

"3. Itching when undressing—*Ars., Amm. m., Cocc., Dros., Dulc., Gamb., Ham., Hyper., Mezer., Nux., Oleand., Rhod., Rumez., Silica., Stann., Sulph.*

"Therefore *Sulphur* is the only one remedy that corresponds to these, and it agrees fairly well with the other symptoms. Give one dose of *Sulph. m. m. (F.C.)*, i.e., the millionth potency, the highest yet made, and let it act a long time."

I sent her one dose of this potency, and told her not to be in any special hurry about coming to see me again. Six weeks later she was very much better, and the improvement continued to progress steadily though slowly for several months. All this time the only medicine she had was *Sac. Lac.* After that I gave her an occasional dose of the d.m. potency of *Sulph.*, she all the while steadily advancing towards cure. About a year and a half from her first visit she ceased her visits, considering herself cured. Of course, a year and a half seems a long time, but you must not forget that the disease had lasted eighteen years.

## 2. A Case of Alopecia Areata cured by Phos. 100 m.

This is a case already reported in the *Monthly Hæmæopathic Review*, but I introduce it here as being a very fair illustration of my subject, \* \*

W. C., aged 11, was brought to the dispensary last August suffering from the above complaint. He was said to suffer from "worms," his appetite was capricious, and after meals he suffered from a hardness and fulness in the region of the stomach (a not uncommon thing for boys). The bald patches were in the usual position and of the usual appearance; there were several large patches behind the ears and on the occiput. They were circular, sharply circumscribed, perfectly bald, of ivory whiteness, smooth and shiny like a billiard ball. The skin had the usual white, shining, atrophic appearance.

In this case the subjective symptoms were very meagre, so that one had to trust almost entirely to the objective. In vol. i. of the *Medical Counsellor* (1879) Dr. H. N. Guernsey, writing about *tinea decalvans*, says: "When the denuded part or parts of the scalp present the appearance of *clearness, whiteness, and smoothness, Phos.* will pretty certainly be indicated by all the other symptoms, when a very few doses of this remedy in the 19m. will be sufficient to set up such an action as to cure the patient and restore the hair as in health." Not having the above attenuation, I gave the boy one dose of the 100m. In the course of three weeks there were distinct signs of a growth of hair on the bald patches, and by the end of two months it was almost impossible to make out the position of the patches, they being completely covered with a good growth of hair.—*Hom. World*, Oct. 1897.

**Gleanings from Contemporary Literature.****THE HARVEIAN ORATION ON SCIENCE AND  
MODERN CIVILISATION.***Delivered before the Royal College of Physicians, October 18th, 1897.***By SIR WILLIAM ROBERTS, M.D., F.R.S., F.R.C.P.,**  
Formerly Physician to the Manchester Royal Infirmary, and Professor of  
Medicine, Victoria University.**I.**

Mr. President and Gentlemen,—We have met to-day to commemorate a great name and a great discovery. By his demonstration of the true motions of the heart and blood Harvey laid the foundation of animal physiology as a department of exact science. This work is memorable not only from its historical relation to physiology and practical medicine, but perhaps still more so from its constituting the earliest example of the solution of a biological problem of the first rank by an orderly process of observation and experiment, conceived and carried out on the lines of modern scientific research.

Harvey flourished at the dawn of exact science. Indeed, he was himself one of the heralds of that dawn which in our own time has broadened out into such marvellous day; and I propose on our present anniversary to consider Harvey's life and work, not so much as they concern our special studies, but as symbolising the commencement of a new era in human progress—the era of exact science—which, in the present age, is slowly but surely transfiguring the aspects and prospects of civilised society.

I need not long detain you over the particulars of Harvey's life. He was the eldest son of an opulent Kentish yeoman,\* and was born at Folkestone in 1578.

Harvey passed his schoolboy days at the King's Grammar School in the present city of Canterbury. From thence he migrated, at the age of 16, to Caius College, Cambridge. Harvey spent some three years at the university, and graduated as Bachelor of Arts in 1597, just three hundred years ago. At the age of 20 he proceeded to Padua to pursue his medical studies. At that period Padua was one of the foremost universities in Europe, and was especially famous as a school of anatomy. Harvey passed four years at Padua, and had for teachers the most celebrated anatomists of the day, namely, Fabricius of Aqua Pendente and Casserius, names which are still embalmed in our anatomical nomenclature. It was obviously of the greatest advantage to Harvey, in view of his future work, that his attention was thus early fixed on the solid data of descriptive anatomy, which could be directly verified by eye and hand in the dissecting room, rather than on the pedantic aphorisms and cloudy speculations which constituted so large a part of the medical learning of that time. At the end of his course of study at Padua he obtained the degree of Doctor of Medicine, and returned to England in 1603. In the same year he received his doctor's degree from the University of Cambridge. The young Harvey now settled in London,

\* In those days the yeomen of Kent were persons of consideration. There is an old rhyme which runs :

A knight of Cales,  
A squire of Wales,  
And a laird of the North countree ;  
A yeoman of Kent  
With his yearly rent  
Will buy them up all three.

and entered on his professional career amid the most favourable surroundings for commanding success, whether as a fashionable physician or as a scientific investigator. He was in easy circumstances, and he had the prestige attaching to the highest education the time afforded. In his 26th year he married a daughter of Dr. Lancelot Brown, who had been physician to Queen Elizabeth. This alliance must have brought him in touch with the nobility and Court circles. In addition, he was endowed with a brilliant intellect, a sound character, good health, and indomitable industry. To crown all, he was inspired with an enduring passion for original research, a passion which persisted throughout his long life of close on 80 years.

With these manifold advantages, intrinsic and extrinsic, it is not surprising that Harvey made rapid way. At the age of 29 he became a Fellow of the College of Physicians; at 31 he was elected Physician to St. Bartholomew's Hospital; at 37 he was chosen Lumleian Lecturer on Anatomy to the College of Physicians. About the same time he was appointed Physician Extraordinary to James I, and subsequently Physician in ordinary to his successor, Charles I. These latter appointments gave Harvey command of the herds of deer in the Royal parks, for the purpose of the vivisections and dissections which he practised in the course of his researches on the motions of the heart and blood, and in his investigations on animal generation and embryology.

Harvey delivered his first course of Lumleian lectures in 1616, when he was 38 years of age. It was in these lectures that he first propounded his views concerning the motions of the heart and blood, and demonstrated before the Fellows of the College the anatomical and experimental evidence on which he based his conclusions. These demonstrations were, as he tells us, annually repeated at the Lumleian lectures for nine or ten successive years, no doubt with ampler and ampler proof of the truth of the new doctrine of the circulation of the blood. It was only after this long and searching probation that Harvey ventured to give his discoveries to the world. This he did in the form of a little treatise, printed at Frankfort in the year 1628. Before proceeding to analyse this remarkable work I will conclude what I have to say, and very briefly, concerning the other work and the rest of the life of Harvey.

After the publication of his treatise on the circulation, Harvey seems to have concentrated himself, as regards physiological work, on his investigations concerning the generation of animals. He bestowed long years and an immense amount of labour on this subject. Over and over again he minutely dissected the organs of generation in various kinds of animals. He watched with patient observation the slow growth of the embryo, from its earliest inception to its full maturity and birth. In this way he gradually accumulated an enormous mass of information which he embodied in fragmentary disquisitions, composed apparently at irregular intervals, as leisure and work permitted. These disquisitions were eventually collected together and printed towards the close of Harvey's life in a separate volume, under the supervision of his friend, Sir George Ent, with the title of *Exercitationes de Generatione Animalium*. This work, though many times larger than the treatise on the motions of the heart and blood, is incomparably less satisfying and conclusive. To the modern reader of these disquisitions the reason of their shortcomings is plain enough. Harvey was stopped—and stopped absolutely—at every critical point by his want of a larger magnifying power. He had at his disposal only a pocket lens, which magnified perhaps four diameters. The ovum must have appeared to him as a structureless mass of material, and the seminal discharge as a homogeneous fluid. He knew nothing, and could know nothing, of the cellular elements of the ovum, nor of the motile filaments which constitute the “vital spark” of the spermatic fluid.

The later years of Harvey's life were passed in peaceful retirement. The civil troubles of the time had broken up his household and scattered his patients, but had left his private fortune unimpaired. At the age of 68 he relinquished his appointments and practice, and went to reside with one or other of his brothers, who were wealthy London merchants. He still continued the studies he loved so well, and maintained his interest in the College of Physicians. Sir George Ent gives us a touching glimpse of him as he appeared in his seventy-third year at the house of his brother Daniel at Combe. "I found him," says Dr. Ent, "with a cheerful and sprightly countenance, investigating, like Democritus, the nature of things. Asking if all were well with him, 'How can that be,' he replied, 'when the State is so agitated with storms, and I myself am yet in the open sea? And, indeed, were not my mind solaced by my studies and the recollection of the observations I have formerly made, there is nothing which should make me desirous of a longer continuance. But thus employed, this obscure life and vacation from public cares, which would disgust other minds, is the medicine of mine.'

Harvey had the satisfaction of living to see his great discovery of the circulation of the blood generally accepted as true. In his old age he was known and honoured throughout the learned world. The college of Physicians erected a statue in his honour. In his seventy-sixth year he was elected President of the College, but declined the honour on the plea of the infirmities of age. He accepted, however, the office of Councillor, which he held for two years. He enriched the College with many gifts; he furnished the library with books, and filled the museum with "simples and rarities," as well as with specimens of instruments used in surgery and obstetrics. Finally, in the year preceding his death, Harvey made a transfer to the College of his paternal estate of Burmarsh, in Kent. In the deed of gift conveying this property to the College there is provision for a salary to the College Librarian, and for the endowment of this annual Oration. The Orator is directed to exhort the Fellows "to search out and study the secrets of Nature by way of experiment, and also for the honour of the profession to continue mutual love and affection among themselves." This double injunction of our venerated saint and apostle has, I venture to believe, been fairly observed, according to the measure of their abilities, by successive generations of the Fellows of this College, even to the present day.

Harvey made a peaceful ending in his eightieth year, and was buried, full of years and honour, in his brother Eliab's vault in the parish church of Hempsted, near Saffron Walden, in Essex. Seventeen years ago, on October 18th, 1883, by the piety of this College, his remains were removed from the dilapidated vault, and, with befitting solemnity, reinterred in a marble sarcophagus in the Harvey Chapel attached to the same church.

## II.

Harvey's activity as an investigator ranged over a wide field, but his fame as a discoverer and his rank in the hierarchy of science must always depend on his researches on the motions of the heart and blood. These researches were published in 1628 in the form of a small Latin quarto of only seventy-six pages. This little volume embodies the results of some twenty years' work, carried on during Harvey's prime, when his inventiveness and receptivity were at their highest. The book is in several respects a remarkable one. It presents to us the earliest record we possess of a really scientific investigation in the domain of biology, based on observation and experiment. Although written 270 years ago, the work is essentially modern in tone and method. It is, in fact, the prototype of the scientific "paper" or "monograph" of our own day; and for clearness of demonstration and conclusiveness of proof stands favourable comparison with the most renowned masterpieces of recent times.

Harvey begins with an account of the state of knowledge on his subject at the time he wrote. He describes the confusion and contradiction reigning in men's minds concerning the actions and offices of the heart and movements of the blood. He then sets forth in a series of chapters the dissections, vivisections, observations, experiments, and reasoning by which he proved that the blood flows in a continuous stream along its now well-known route. He shows that the motor power for the movement of the blood resides in the heart, that the heart is a muscular organ, and that the auricles and ventricles are hollow muscles which contract in action and forcibly expel their contents. He demonstrates that the disposition of the valves within the heart and at the roots of the aorta and pulmonary artery and along the veins is such that the blood expelled by the contractions of the heart must of necessity flow onward in the direction indicated, and that any reflux in a contrary direction is a mechanical impossibility. He argues that the blood stream must be continuous throughout its whole course, because, wherever you tap the channel, whether in an artery or in a vein, the whole of the blood contained in the body is drained away in a few minutes. He fortifies his arguments by a number of collateral proofs, all converging and pointing to the same unavoidable conclusion. Especially ingenious and original is the following argument, which has a curiously modern ring about it. If you estimate the charge of blood delivered into the arteries of each stroke of the ventricle at 1 or 2 drachms, and calculate the rate at which the heart is beating at 60 to 70 per minute, you arrive at a volume of blood passing through the heart in the course of every half hour which is greater than the aggregate ingesta of a whole day, and greater than the total sum of blood contained in the body. The inference is therefore irresistible that the whole of the blood, and the same blood, must be incessantly passing and revolving through the heart.

Harvey was much exercised as to the precise way in which the blood found its way from the terminal arteries to the commencing veins. He had — absolute proof before him that it did somehow find its way, but how? He was able, by minute dissection of the organs and tissues, to satisfy himself that it was not, as some of his contemporaries supposed, by coarse anastomosis between the arteries and veins. "I have myself," he tells us, "pursued this subject of the anastomosis with all the diligence I could command, and have given not a little both of time and labour to the inquiry; but I have never succeeded in tracing any connection between arteries and veins by a direct anastomosis of their orifices. Neither in the liver, spleen, lungs, kidneys, nor any other viscus is such a thing as anastomosis to be seen; and by boiling I have rendered the whole parenchyma of these organs so friable that it could be shaken like dust from the fibres, or picked away with a needle, until I could trace the fibres of every subdivision, and see every capillary filament distinctly."\* Harvey had only a simple lens to aid his vision. With this he could not detect the delicate capillary network which united the minute arteries and veins into a closed vascular system; and he was reduced to the conjecture that the blood percolated the organs and tissues as water percolates the earth and produces springs and rivulets. It is almost pathetic to contemplate this eager earnest inquirer, looking with wistful, straining eyes for the communicating channels which he knew must exist, but could not see, and to remember that the solution of the puzzle was almost within his grasp; for hardly had he closed his eyes than the improvements in the microscope enabled Malpighi and Leuwenhoek to demonstrate the completion of the circuit of the blood through the capillaries in the web of the frog's foot.

It is singular that Harvey in all his writings nowhere betrayed any consciousness of his sore want of a higher magnifying power. He did not,

\* Works, p. 103.

apparently, divine that it was possible to enlarge objects beyond the power of the common lens which had been in use from antiquity ; yet it was precisely this want which foiled him at almost every step in the prosecution of the studies to which he devoted his life.

### III.

When Harvey was entering on his career as an investigator, in the early years of the seventeenth century, the great movement of the Renaissance had produced its full effects. Starting in Italy in the fourteenth century, it spread during the fifteenth and sixteenth centuries and permeated the rising nationalities of Western Europe. It was through the zeal engendered by this movement that the priceless literary and artistic treasures of Greece and Rome were rescued from oblivion and made the secure heritage of all time. The study of these monuments of ancient genius, and the inspiration communicated by them, saved mediæval Europe from barbarism, and created a new civilisation not inferior in polish to that of the classical ages. Upon literature and the fine arts the spirit of the Renaissance reacted with the happiest possible effects. It inspired the masterpieces of poetry, painting, architecture, and sculpture, which constitute the glory of the fifteenth and sixteenth centuries, and compel the admiration and challenge the rivalry of the nineteenth century. But, as regards natural knowledge the influence of the Renaissance was at the first, and even for a long time, distinctly unfavourable. The writings of Hippocrates, Aristotle, Ptolemy, Galen, and other masters were studied and searched, not for inspiration to new inquiry and higher development—but these great names were erected into sacrosanct authorities, beyond whose teaching it was vain, and even impious, to seek to penetrate. The result of this perversion was that the pursuit of natural knowledge degenerated into sterile disputations over the words of the masters. This numbing despotism of authority comatosed the intellect of Europe during many generations. It received the first rude shocks from the discoveries of the great anatomists of the sixteenth century ; and it was finally overthrown by the force of the demonstrations of Galileo and Harvey, powerfully aided, no doubt, by the philosophical writings of Bacon and Descartes.

These four men—Galileo, Harvey, Bacon, and Descartes—were the dominating spirits of their epoch in the sphere of natural knowledge ; they were contemporaries ; and three of them must have had more or less personal acquaintance with each other. Harvey was Bacon's friend and physician ; and we can easily believe that much talk went on between the investigator and philosopher concerning the studies in which they were mutually interested, and that Bacon imbibed his enlightened notions respecting the importance of experiments in the pursuit of knowledge from the precepts and practice of Harvey. It does not appear that Descartes was personally known to Harvey, but he was one of the earliest to accept the doctrine of the circulation, and to write in its defence. When Harvey was a student at Padua, Galileo occupied the chair of mathematics in that university. These two men take rank as the twin founders of modern science, the one in the domain of biology and the other in the domain of physics.\* Their lives largely overlapped ; they were contemporaries for sixty-four years, and both nearly reached the patriarchal age of four score. Roughly speaking, their period of activity covered the first half of the seventeenth century. They were, each in his respective department, pioneers in the method of searching out the secrets of nature by observation and experiment, and in proclaiming the paramount necessity of relying on the evidence of the senses as against the dicta of authority.

### IV.

The present year is the 300th anniversary of Harvey's graduation at Cambridge, and of the commencement of his career as a student and

investigator of nature. That date, 1697, corresponds roughly with the birth-time of modern science. The occasion is, therefore, not inappropriate for a survey of the changes impressed upon civilised society by science after three centuries of expansion and growth. The lapse of time is sufficiently long, and the advance made is sufficiently great, to enable us to estimate approximately the scope and strength of this new factor in our environment, and perhaps even to appreciate the influence which the cultivation of science is likely to have on the future of modern civilisation.

All the older civilisations have issued either in extinction or in permanent stagnation. The civilisations of Egypt and Chaldaa, and of Greece and Rome, after a phase of progressive decline, eventually perished by military conquest. The ancient civilisations of the Far East—those of India and China—still persist, and have a semblance of life, but it is a life of helpless torpor and immobility. Is our modern civilisation doomed to share a kindred fate? There are, I think, good reasons for believing that in this respect history will not repeat itself. Special features are observable, and special forces are at work, in contemporary civilisation which differentiate it profoundly from all its predecessors.

It may be said, broadly, that the older civilisations rested essentially upon art and literature (including philosophy), and that modern civilisation rests, in addition, upon science, and all that science brings in its train. This distinction is, I think, fundamental, and connotes a radical difference as regards stability and continuance between ancient and modern society. A comparison of the mode of growth of the fine arts and literature on the one hand, with the mode of growth of science and its dependent useful and industrial arts on the other, brings out this point very clearly.

The evolution of literature and art displays the following well-marked characteristics. Starting from some rude beginnings, each branch of literature and each branch of the fine arts grows by a succession of improved ideals until a certain culminating level of excellence (or phase of maturity) is attained. When this level is reached no further growth takes place, nor even seems possible. The level of excellence attainable by any nation depends presumably upon the measure of the original endowment of the race with artistic and literary faculty. When and after this summit level of excellence is achieved, all subsequent expansion, if any, is quantitative rather than qualitative—and consists in modifications, variations, repetitions and imitations—but without any real advance in artistic and literary excellence. It may be further noted that there is observable in the past annals of literature and the fine arts a fatal tendency to a downward movement. The variations are apt to show meretricious qualities, which indicate, in the judgment of critics, a degradation from the high standard of the earlier masters. The life of each of the fine arts seems, as Professor Courthope has expressed it, to resemble the life of an individual in having periods of infancy, maturity, and decline. The witness of history bears out this view.

It is almost startling to consider how long ago it is since most branches of art and literature had already reached their highest known pitch of excellence. The Homeric poems are supposed to have been composed a thousand years before the Christian Era, and no one doubts that as examples of epic poetry they still stand in the front rank. In the fourth and fifth centuries B.C. there occurred in Greece an extraordinary outburst of artistic and literary genius—such, perhaps, as the world has never seen before nor since. During this epoch sculpture was represented by Phidias and Praxiteles, architecture by the builders of the Parthenon, painting by Apelles and Zeuxis, dramatic poetry by Sophocles, Euripides, and Aristophanes, and speculative philosophy by Plato and Aristotle. Greece maintained her political independence for two centuries after this period; but she did not



produce anything superior, nor apparently even equal, to the master-pieces of this golden age.

A parallel sequence is observable in the history of Ancient Rome. Art, literature, and philosophy, and all studies that may be grouped under these headings, attained their culmination in the Augustan age; and no advance thereupon took place, but rather a falling off, during the subsequent centuries of imperial Rome's political existence.

If we turn our eyes to the Far East we see that the masterpieces of architecture and ornamental metal work, and of poetic and philosophical literature, are all old—many of them very old. Neither in India nor China nor in any other Far Eastern country are there any indications of advance for many centuries in the domain of artistic and literary culture.

The history of Western Europe tells a similar tale. The finest examples of Gothic and Norman architecture date from the twelfth and thirteenth centuries. Painting culminated in Italy during the fifteenth and sixteenth centuries with Raphael, Da Vinci, Correggio, Titian, and Paul Veronese. The same art reached its highest level in the Low Countries with Rembrandt and Reubens; in Spain with Velasquez and Murillo; in France with Claude Lorraine and Poussin—all artists who flourished in the seventeenth century. In England nothing greater than the works of Reynolds, Gainsborough, and Turner has been produced by later artists. Similarly with literature: most of the masterpieces belong to a past age. Italy can show no higher examples of poetry than the creation of Dante, Petrarch, Tasso, and Ariosto. The most ardent admirers of the Victorian poets would scarcely contend that any of them stand on a higher pedestal than Shakespeare and Milton; nor would any German critic claim equality for any recent poet of the Fatherland with Goethe and Schiller. In the delightful art of music, the masterpieces of Haydn, Handel, and Mozart, judging by their popularity at the present day, are not surpassed by the works of any of the later musical composers.

I need not pursue the subject in greater detail. Wherever we look—in, all ages, among all peoples—we encounter the same story with regard to that large and varied and most precious outcome of the human mind which may be grouped under the categories of the fine arts and literature. There is a history of improvement and growth up to a certain culmination or phase of maturity. Beyond that point no further growth seems possible but rather, instead, a tendency to decline and decadence.\*

The evolution of science differs fundamentally from that of literature and the fine arts. Science advances by a succession of discoveries. Each discovery constitutes a permanent addition to natural knowledge, and furnishes a post of vantage for, and a suggestion to, further discoveries. This mode of advance has no assignable limits, for the phenomena of Nature—the material upon which science works—are practically infinite in extent and complexity. Moreover, science creates while it investigates; it creates new chemical compounds, new combinations of forces, new conditions of substances, and strange new environments, such as do not exist at all on the earth's surface in primitive nature. These "new natures," as Bacon would have called them, open out endless vistas of lines of future research. The prospects of the scientific inquirer are therefore bounded by no horizon, and no man can tell what ultimate issues he may reach.

The difference here indicated between the growth of art and literature

\* If we take a wider view of the constituent elements of organised society—and embrace in our consideration the religious systems, the political and civil institutions, the military organisations, the commerce and the miscellaneous disconnected mass of natural knowledge existing in the older civilisations we look in vain for any constituent which had more than a limited scope of expansion, and was not subject to decay.

and the growth of science is of course, inherent in the subjects, and is not difficult to explain. The creation of an artist, whether in art or literature, is the expression and embodiment of the artist's own mind, and remains always, in some mystic fashion, part and parcel of his personality. But a scientific discovery stands detached, and has only a historical relation to the investigator. The work of an artist is mainly subjective—the work of a scientific inquirer is mainly objective. When and after a branch of art has reached its period of maturity, the pupil of a master in that art cannot start where his master ended, and make advances upon his work; he is fortunate if at the end of his career he can reach his level. But the pupil of a scientific discoverer starts where his master left off; and, even though of inferior capacity, can build upon his foundations and pass beyond him. It would seem as if no real advance in art and literature were possible except on the assumption that there shall occur an enlargement of the artistic and literary faculty of the human mind. No such assumption is required to explain and render possible the continuous advance of science. The discoverer of to-day need not be more highly endowed than the discoverer of a hundred years ago; but he is able to reach further and higher because he stands on a more advanced and elevated platform built up by his predecessors.

## V.

The fatal weakness of previous civilisations lay in the absence of any element which had inherent in it the potentiality of continuous growth and unlimited expansion; and this is precisely what exact science supplies to modern civilisation. A sharp distinction must be drawn between the so-called science of antiquity and the science of to-day. The ancients had a large acquaintance with the phenomena of Nature, and were the masters of many inventions. They knew how to extract the common metals from their ores; they made glass; they were skilled agriculturists; they could bake, brew, and make wine, manufacture butter and cheese, spin, weave, and dye cloth; they had marked the motions of the heavenly bodies, and kept accurate record of time and seasons; they used the wheel, pulley, and lever; and knew a good deal of the natural history of plants and animals, and of anatomy and practical medicine. This store of information had been slowly acquired in the course of ages, mostly through haphazard discovery and chance observation, and formed a body of knowledge of inestimable value for the necessities, conveniences, and embellishments of life. But it was not science in the modern sense of the word.\* None of this knowledge was systematised and interpreted by co-ordinating principles, nor illuminated by generalisations which might serve as incentives and guides to further acquisitions. Such knowledge had no innate spring of growth; it could only increase, if at all, by casual additions—as a loose heap of stones might increase—and much of it was liable at any time to be swept away into oblivion by the flood of barbaric conquests.

It is quite obvious, from the subsequent course of events, that there came into the world of natural knowledge about three centuries ago, in the time of Galileo and Harvey, a something—a movement, an impulse, a spirit—which was distinctly new, which Bacon, with prophetic insight, termed a “new birth of time.”

This remarkable movement did not originate with any startling revelation; it consisted rather in an altered mental attitude, and a method. There arose a distrust in the dicta of authority, and an increasing reliance on ascertained facts. These latter came to be regarded as the true and only data upon which natural knowledge could be securely founded and built up. Doubt and question took the place of false certainty. The hidden meaning

\* “It is not a collection of miscellaneous, unconnected, unarranged knowledge that can be considered as constituting science.”—*Whewell*.

of phenomena was sought out by observing them under artificially varied conditions—or, to use the words of Harvey: "The secrets of Nature were searched out and studied by way of experiments." *A priori* reasoning from mere assumptions, or from a few loosely observed facts, fell into discredit. Observations were repeated, and made more numerous and more exact. These were linked together with more rigid reasoning to stringent inductions. Hypotheses (or generalisations) were subjected to verification by experiment; and their validity was further tested by their efficacy in interpreting cognate problems and by their power to serve as guides to the acquisition of fresh knowledge. Instruments of precision were devised for more accurate observation of facts and phenomena—for weighing and measuring, for estimating degrees of temperature, the pressure of gases, the weight of the atmosphere, and for recording time. The sense of sight was aided by means of the telescope and microscope. The invention of instruments and appliances for assisting research was an essential and invaluable feature of the "new philosophy." It is singular that so little progress in this direction was made by the quick-witted Greeks of the classical period; and their neglect or incapacity in this respect largely accounts for their conspicuous failure in science as contrasted with their brilliant success in art and literature.\*

## VI.

\* The new method soon began to yield fruit—at first slowly, then more and more rapidly as the workers increased in number, and the method was more fully understood. Discoveries were no longer solely stumbled on accidentally, but were gathered in as the fruit of systematic observation and purposive research. It is not necessary for me, even if I had the time and ability, to trace the history of scientific discovery from the time of Harvey onward. I will only mention a few particulars by way of illustration. You all know how as time passed on and knowledge expanded, the primary sciences became divided into separate departments for more minute study—how new sciences have arisen, some of which have now grown to vast proportions—how improved instruments and appliances of infinite delicacy have been invented to aid research—and how, in the present age, the gains of pure science have been turned to innumerable channels of practical utility.

\* Whewell observes (*History of the Inductive Sciences*, vol. i, Book 1, chap. iii): "The Aristotelian physics cannot be considered as otherwise than a complete failure. It collected no general laws from facts; and consequently, when it tried to explain facts, it had no principles which were of any avail." Whewell argues that this failure was not due to the neglect of facts. He goes on to say: "It may excite surprise to find that Aristotle, and other ancient philosophers, not only asserted in the most pointed manner that all our knowledge must begin from experience, but also stated in language much resembling the habitual phraseology of the most modern schools of philosophising, that particular facts must be collected; that from these general principles must be obtained by induction; and that these principles, when of the most general kind, are axioms." Then he quotes passages in proof from Aristotle's writings. It is, however, pretty evident that Aristotle's reverence for facts was no more than a pious opinion, which he habitually ignored in the actual handling of questions of natural knowledge. His treatise "On the Parts of Animals" bristles with errors of observation which a very moderate amount of painstaking would have rectified. Had the ancient Greeks, and their successors in the Middle Ages, been more accurate observers of facts, and had they sought for and invented instruments for the more exact observation of facts, they would not have so conspicuously failed to establish at least the foundations of exact science. The historian of the inductive sciences, however, will have it otherwise. He sums up his argument thus: "The defect was that, although they had in their possession *Facts and Ideas*, the *Ideas* were not distinct and appropriate to the *Facts*." Is it not rather the case that the "Ideas were not distinct and appropriate to the *Facts*," precisely because the "Facts" were indistinctly seen and imperfectly apprehended?

The advances made in physics and mechanics during the seventeenth and eighteenth centuries prepared the way for the invention and perfection of the steam engine in the nineteenth century. The introduction of the steam engine increased at a bound the power of the human arm many-fold.\* Through its instrumentality the land has been covered with railways, and the sea with ocean steamers. Electrical science has given us the telegraph and telephone, a new illuminant, and a new motor. The steam printing press, the telegraph, and the railway together, have made it possible to produce that perhaps most wonderful of all the indirect outcomes of the growth of science—the modern newspaper. The great science of chemistry has revealed the composition of the material world; has originated vast industries, which give work and wages to millions of the population; and has placed all kinds of manufacturing processes upon a basis of scientific precision. Under cover of chemistry have sprung up the sub-sciences of photography and spectroscopy, which have given a new and unexpected development to our knowledge of the heavenly bodies. The revelations of palæontology and embryology have led to the establishment on a firm basis of the theory of organic evolution. This theory—by far the most penetrating generalisation of our time—has not only thrown a flood of light upon the deepest problems of natural history, but has also revolutionised the whole domain of speculative thought. Physiology and practical medicine have profited immensely by the general advance of the sister sciences, and by the adoption of scientific methods in the prosecution of research. Optical science gave birth to the achromatic microscope. The microscope has laid bare the minute structure of plants and animals, and introduced zoologists and botanists to a vast subkingdom of minute forms of life, previously undreamt of. The microscope also, in conjunction with chemistry, founded the new science of bacteriology. Bacteriology has inspired the beneficent practice of antiseptic surgery; it has also discovered to us the parasitic nature of zymotic diseases—and opened out a fair prospect of ultimate deliverance from their ravages.

Thus have the several sciences advanced, and are still advancing, in concert, step by step, by mutual help, at an ever-increasing speed—pushed on by that irrepressible forward impulse which has characterised the scientific movement from its inception. This movement has now become the dominant factor in civilisation.

## VII.

There is no doubt that, under the reign of science, a striking amelioration in the state of society has taken place. The mass of the people are better housed and fed—and, above all, better educated. Their sanitary surroundings are improved, and the death-rate has fallen. Crime and pauperism have diminished, and there is greater security for person and

\* Mr. Mulhall calculates that "our steam power in the United Kingdom is equal to the force of 169,000,000 able-bodied men, a number greater than the whole population of Europe could supply.—*National Progress during the Queen's Reign*, p. 22.

property. The amenities and enjoyments of life are on the increase, and the average scale of comfort is markedly raised. Moreover, this amendment is not confined to the material and physical well-being of the population. There is some evidence that the complex of conditions we term "modern civilisation" is acting favourably in the direction of making people more reasonable, and better conducted. Peace is now the normal condition between civilised states; and there is a growing trend of opinion in favour of settling international differences by the more rational method of arbitration, rather than by war. Political morality approximates more nearly to that recognised as proper in private life. The duel has almost been laughed out of court. Industrial quarrels are conducted with more order; and there is an appeal to facts and reason on both sides, and more readiness to adjustment by compromise.

The whole environment of modern life seems in several ways calculated to foster habits of correct thinking and acting. The inclusion of science in the scope of general education is a very important innovation. This extends the range of subjects in regard to which precise reasoning is possible; and tends to promote the application of scientific modes of thinking and reasoning to all the problems of life. We may be quite sure that exact thinking leads in the main to correct conduct; an evil deed is not only a crime, but also a blunder. The periodical press must, one would think, be a good training-school for thinking and reasoning. The discussion of all sorts of questions in its columns can scarcely fail to have an educating effect. The disputants must perforce read one another's arguments and be, consciously or unconsciously, influenced thereby. It may be assumed, or at least hoped, that there is in arguments, as in organic forms, a tendency to the survival of the fittest—and that in the long run the better argument carries the day. The blaze of publicity amid which we live, through the ubiquitous newspaper, lends an additional motive to right doing. The "fierce light which beats upon a throne" beats nowadays also upon the citizens, and doubtless helps to keep them in the straight path.

"But," say the prophets of evil: "this will not endure; modern civilisation, based on science, will in time go the way of all its predecessors, and end in extinction or in decay and stagnation." It is proverbially unsafe to dogmatise about the future; and in all human affairs, even those termed scientific, there is nothing so certain as the unexpected. This, however, may be affirmed: that if modern civilisation is to come to an end, it will not perish in the same way, nor from the same causes, as previous civilisations.

One of the standing perils of civilised communities in ancient times was the risk of being subjugated by less civilised neighbours, or of being overwhelmed by hordes of barbarian invaders. This danger no longer threatens us. Power has passed for ever into the hands of the nations which cultivate science, and invent. The appliances of war are now placed on a scientific basis; and the issue of battle is decided in the laboratories of the engineer and chemist. The late C. H. Pearson argued that the dark and

yellow races, in virtue of their greater number and fecundity, might in time come to dispute the supremacy of the white races—that they would learn the drill and copy the armament of European armies, and thus equipped would be able, by their superior mass, to hem in and curb, if not to subjugate, the Western nations. But the march of science and invention never stops; and it is inconceivable that the scientific nations shall not always be many stages in advance of the unscientific nations in the destructiveness of their weapons and the perfection of their military equipments—and this would give them an advantage which scarcely any disparity of numbers could neutralise. The “yellow terror” can never be more than a phantom until these races begin to show capacity for scientific discovery, and the further (and somewhat different) capacity for turning their discoveries to practical uses.

Against the more insidious peril of decay and stagnation the scientific movement seems also to offer effective safeguards. We sometimes hear complaints of the hurry and bustle—the stress and strain—of modern life; this unrest may incommode individuals, but it is the antiseptic of society. Probably the deadliest predisposing factor in the decline of former civilisations was the mental inanition arising from deficiency of fresh and varied intellectual pabulum. Physiological analogies lead us to the inference that an idle brain, like an idle muscle or an idle gland or nerve, would deteriorate in function; and, conversely, that a well-exercised brain would tend to reach its possible best. I conceive that our forefathers and the ancients, for the most part, led somewhat monotonous lives. They had but little fresh and varied food for thought. The generality could not, for lack of “news,” take a sustained interest in the course of public events. The world of science was an unopened book. Intercommunication was slow and difficult; and the whole current of existence flowed sluggishly. Contrast this with the vivid abounding life of the present day. Veins of interest are greatly multiplied, to meet and satisfy the infinitely varied individual aptitudes of men and women. A considerable number of persons of both sexes now busy themselves, either as amateurs or something more, with the study of some branch of science or natural history. Those whose bent is to politics, art, letters, sport, or fashion, find in the daily newspaper and the periodical press an unfailing fresh supply of the mental food they love. Business and pleasure are carried on with a briskness formerly unknown, and the pulse of national life is quickened through every part. It seems impossible that decay should invade the body politic while such conditions of all-pervading activity prevail, and there is no valid reason why such conditions should not continue to prevail. It has often been remarked that periods of national upheaval, when men’s minds are deeply stirred—like the rise of Islam, the Protestant Reformation, and the French Revolution—were exceptionally prolific of able men. It does not appear altogether unreasonable to suppose that the stir and movement of modern life may be similarly favourable to the production of “men of light and leading” for the service of the community. The proximate cause of the downfall of states seems

always to have been a defective supply of strong and capable men at the head of affairs, and in positions of trust. The *dolce far niente* is not conducive to the formation of strong characters; and those who sigh and yearn for social quietism may find comfort in the reflection that the hum and buzz which disturbs them is a sure token of the health and strength of the common hive.

It is given to few to deliver a stroke of work like that of Harvey. But many of those before me have done something, and some a great deal, to forward the beneficent march of science. To lift the veil from even the smallest corner of the unknown in Nature is not only a pure delight but is surely also doing a service in the cause of humanity. We are here to-day all disciples of Harvey, paying willing homage to his great name. And though we cannot pretend to his genius, we can all of us take to heart the lesson of his life, and seek to emulate his gentleness, his patient industry, his single-minded devotion to a high purpose, and his unswerving loyalty to truth.—*British Medical Journal*, Oct. 23, 1897.

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